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PHOTOGRAPHY
for
SPORTSMEN

Black Duck, Seal Island, Nova Scotia.

PHOTOGRAPHY
for
SPORTSMEN

by

ALBERT DIXON SIMMONS

Profusely Illustrated
by the Author

D. VAN NOSTRAND COMPANY, INC
NEW YORK
TORONTO LONDON

EDITED AND DESIGNED BY EUGENE V. CONNETT

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To my wife
FRANCES BANKS SIMMONS
incomparable partner in the love,
work, and outings of many years

PREFACE

DARKROOM MAGIC—YESTERDAY, TODAY, TOMORROW

Man's desire to record the hunt has given us pictures which antedate his written records. Prompted by a picture-making urge, which runs stronger today than ever before, Cro-Magnon man toiled in his darkroom cave some 20,000 years ago. His tools were crude: sharpened pieces of stone or bone and colors ground from the earth. The rough stone wall of his cave was his canvas; and his subjects were his favorite big game animals: prehistoric cows and stags, woolly coated rhinos, ibex, and bison.

Without further records we can guess that the hunt itself must have been a thriller with the crude weapons he had in hand. His action drawings show what appear to be spears or arrows; some imbedded, others on their way to a vital spot.

There are opinions to the effect that this primitive art was magic—a sort of voodoo that preceded the hunt. One can imagine another kind of before-the-hunt scene. In this the prehistoric artist is giving his son a few pointers about rhino hunting. "See," says dad, as a flicker of light illuminates the drawing. "That's what a rhino looks like and right here's where you put the stone to the long haired critter—now run along and get one for breakfast."

These early drawings may have been the dawn of what we now call visual education. The tools we use today will most certainly be outdated tomorrow. As this book is being written, new types of photographic equipment are on the draughting boards. A revolutionary camera recently put on the market gives the sportsman the unusual treat of snapping a picture in midstream; then, without even beaching the canoe, a knob on the camera is turned and like magic a finished print is in the fisherman's hands. Such a picture can be checked against the subject on the spot and another made for improvement if necessary.

Color photography is progressing literally with the speed of light. Using speed-flash equipment, photographs of birds on the wing are giving us a new brand of frozen action with mosaic-like details of color in all its glory. Man's greatest advance in recording his efforts to smash the atom has recently been demonstrated in photographs made by American and British scientists. Even trails made by atomic fragments are not beyond the eye of the camera! In 1948, camera-bearing rockets, reaching heights of 70 miles, made photographs of more than 100,000 square miles of the western United States. This represents the largest land area ever included in a single photograph.

Who is there to deny that some day a photographer will fly to a distant planet and return with the first motion picture, "OUT OF ANOTHER WORLD"?

I became serious about photography on a bet. My end of the bet was that drawings of waterfowl and other game birds on the wing were haywire because the wings move so much faster than the forward motion of a bird that they are a blur to human vision. How could wing blurs be detailed to prove my point? A camera with a shutter speed of 1/500 sec. saw the unseen and won the bet for me. Since then I've thought of cameras as just so many precision tools with which to interpret the outdoors scene. The carpenter who drives a nail doesn't give a dang about the science of matter and motion—all he needs to know is how to hold the hammer and hit the nail on the head.

Every sportsman of my acquaintance owns one or more cameras and wants to make good pictures. But they're a peculiar lot, many of them. They can rattle off the ballistics of this or that cartridge; they can tie flies, whittle out duck decoys, or scamper through discussions on balanced tackle and shot sizes. But at the mere mention of such a thing as film speed, many of these serious gun and tackle students are stumped. Perhaps this is because a book on photography has never been written from the sportsman's viewpoint—picturing the subjects he lives by, and calling the shots in his language.

The purpose of this book is to give the sportsman his photographic dues without backlashes of technical chatter. While photography can be reduced to a few practical points, the sportsman casting about for better pictures must understand these simple fundamentals and put them to work at the start. He must ply them with the same vigor and patience he uses when tying and fishing his artificials.

Throughout the book, the stress may appear to be on motion picture work, but take another look: all illustrations, with the exception of the slow motion action analysis series, are from stills, the majority of which were made while on motion picture work.

Obviously, the approach to the making of a still picture—viewpoint, meter readings, and camera settings—is the same as setting up for a motion picture scene. The only real difference is that the movie camera operates at constant shutter speed—1/30 sec. at 16 frames per second—on the majority of scenes, while the shutter speed of the still camera is set to arrest the action at hand. The sportsman with a movie camera makes 40 pictures or frames (16mm) for every foot of film exposed. If he is using a still camera, he naturally selects the most interesting part of the action for his stills. A scene worth shooting in movies, rates stills for the same reason.

With this in mind, I have devoted a great deal of space to motion picture work for two reasons: because of its growing popularity in the field, and as a means of avoiding a tremendous amount of duplication in a book devoted to both stills and movies. Chapter I for example, has to do with scenarios. We have come to think of a scenario only as a movie making word, but it can also mean a picture taking plan for stills. Good still coverage on any fishing or hunting trip implies the use of a well studied picture plan. Our popular magazines stress the importance of a series of stills presented in story telling sequences.

Cleveland
March 1951 A. D. S.

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PHOTOGRAPHY
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Chapter 1

SCENARIOS

When Cleopatra planned a fishing trip with Mark Antony, she didn't need fishing tables to tell her just when the fish would take—she had other plans about how to make an angler happy. Unknown to Mark, she hired divers to hook live fish to his lures. Her scenario was sure fire; its continuity made history.

Most of the army of American sportsmen, when on the prowl for game, leave their Cleopatras behind them. It is a strange fact, too, that they are most apt to set out without a plan—a picture plan that will tell a concise story about their doings. Their planning is completed when they've counted in the last dry fly.

The game, whether it runs, swims, or flies, is a fugitive picture when compared with the stocking of a bait box or fly book, but the scenes as they unfold on any hunting or fishing trip, unpredictable as they always are, follow a pattern. It is this sketchy pattern around which picture taking should be planned, when the camp folders are on the table and the trip has its fireside beginning.

Continuity

Continuity in its simplest form would be a single scene of a ruffed grouse crossing a trail. It has a beginning and an end; the simple scene tells the whole story.

There is continuity in a film when it shows how things are done, whether it's a guide laying a fire for a shore dinner, filleting a bass, or setting a beaver trap. In all these there is a logical starting point from which the picture progresses, scene by scene, with each operation in its right place, until at the end, the audience has a clear picture of the entire operation.

There is continuity in a hunting film when it shows you loading duffle at the start of a trip, arriving in camp, scenes of the hunt, breaking camp, and your return. Such scenes and sequences must run in natural order, covering continuity in its broadest sense throughout the entire picture, and detailing action or equipment at its proper place.

Planning continuity of ideas is the beginning of any successful photoplay—its absence, the greatest flaw in amateur movies. Know what you want at the start, then get it on film as soon as possible. The sportsman's knowledge of the outdoors in general, his equipment and its uses, and the game he seeks, represents one part of the plan. His companions and guides, often the partners of former trips, are the actors. Where he goes, and how he gets there, completes the picture outline.

This outline of events need not be an elaborate one, but it should be with you at all times for ready reference, and the scratching of scenes as they are made. After exposing a few dozen scenes, it's practically impossible to remember their exact contents, and even one missing scene can break an otherwise perfect sequence.

I use a loose leaf notebook of shirt pocket size. This contains the working plans for the movie to be made. When the camera is first loaded for a trip, I mark the empty container #1, and a word or two identifying the trip. When I check off a completed scene, I enter the same scene on a separate sheet, starting with reel #1. This gives me the scene sequences of each reel for editing purposes, counts the reels exposed, and outlines the scenes not called for in the scenario.

The ideal outing would be one where each scene is made in its proper sequence, leaving the job of editing to a mere splicing together of the reels. But the weather, and the game, often play the role of havoc to such plans. I recall one early spring fishing trip in the Pennsylvania hills that was limited to seven days. The first six were dull, and sometimes wet. The fishing was good through these days, but without foliage, the stream scene was drab and colorless. Not a single scene was made until the morning of the seventh and last day of the trip.

Since dry fly fishing technique was to be stressed in the picture, I first filmed the anglers who were fortunately taking a few brown trout. The background, and other sequences were all made while the anglers were moving from one piece of water to another, *after* I had obtained enough action footage to make the picture possible.

The plan for the above picture was a simple one. In the opening scene the camera was pointed downward, framing a portion of the edge of a stream at close range. The anglers, with waders on, stepped into the scene, and stopped with only their feet showing. Starting at their feet, the camera was panned upwards framing heads and shoulders, and thus introducing the anglers sizing up the stream. The closing scenes showed the anglers retiring from the stream in high spirits, followed by a close-up of their feet sloshing out of the picture. Titling told *where* the action took place; the picture itself tells *what* was done, *how* it was done, and *who* did it.

There are many times when days are numbered, the weather foul, or the fish outsmart the angler. If, for example, I had made my scenes according to sequence for the above picture, I would have wasted valuable fishing time with only one day to go. There was no certainty at the beginning of the day that we could even take fish. Getting the action first had two-way economy: it saved fishing time, which always pleases the anglers; and without fish showing, all exposed film would have been a total loss.

Time and Space

Because outing trips are usually of short duration, there is no problem of telescoping time, such as tearing off calendar leaves and thus suggesting the passing of months; or a scene of a maple tree in the green of spring, lap dissolved to the same tree in the red of autumn. Foliage, wild flowers, ripe blueberries, the color of marsh grass, all tell the time of year when a picture was made. Preparation for a shore dinner says it's noon; a sunset, the end of day.

Telescoping space is a very important part in many motion pictures. Audiences see only what is put on the screen, and they should never be asked to bridge a thousand miles from your doorstep to a camp in the wilderness with a scene at the start and another of your arrival in camp. That is lack of continuity.

There are many ways of taking the audience with you: a close-up of a map with a color crayon marking the route, tells everybody where you are going and how you get there. A series of road or city signs, each dissolved into another, bridges distance, and tells the route followed. If it's a boat trip, pulling away from the dock, the name of the boat, and arrival at destination is all that is necessary.

With air travel over and into wilderness country, the map scene followed by aerial scenes of the country in which the action is to take place, makes excellent continuity. Take-off, and landing scenes are not important unless they have special connection with the scenario cast.

That part of your motion picture telling *where,* should be as brief as possible. Eliminate all unrelated details—a few well suggested scenes will convey the idea of space and save you time and film.

Continuity in Clothing and Equipment

Lack of continuity in clothing is another common error in amateur movies. At the beginning of a picture, that little notebook in your pocket should contain a complete description of the clothing worn by everybody in the cast. Scenes are often made days apart, with the weather running from hot to cold. The temptation for everybody to dress according to the weather is ever present. A scene of an angler wearing a red shirt, followed by the same angler bundled in his pet black and white check, creates nothing but confusion. At a distance, it could well be another angler at play.

A few years ago I made a trout fishing picture out of my camp in the north woods. Due to bad weather and poor fishing conditions, the picture was in the making for eight weeks. At the start, the guide was wearing a well tattered straw hat, and a red plaid shirt. Whenever we left camp, I saw to it that he was carrying the same pack sack, and the same landing net used in previous scenes; the starting shirt and hat, if not his choice of attire for the day, went along in the pack sack and could be donned whenever necessary. While we had the choice of five canoes, the green one used at the start was the one appearing in all scenes.

Continuity of Motion

I recently viewed a film of an African big game hunt in which a group of hunters, with rifles in hand, were shown examining the ground. Evidently they were tracking and I fully expected to see a close-up of the tracks, followed by a sight of the game. But the film left the hunters where they were, and there flashed on the screen a scene at the chuck wagon with all hands eating. At another point in this picture, a native was busy chopping down a large tree—probably clearing a path for the safari—but the tree never fell, and the picture moved to an unrelated scene.

If scenes of action like the above are worth recording, they must follow through with the whole story.

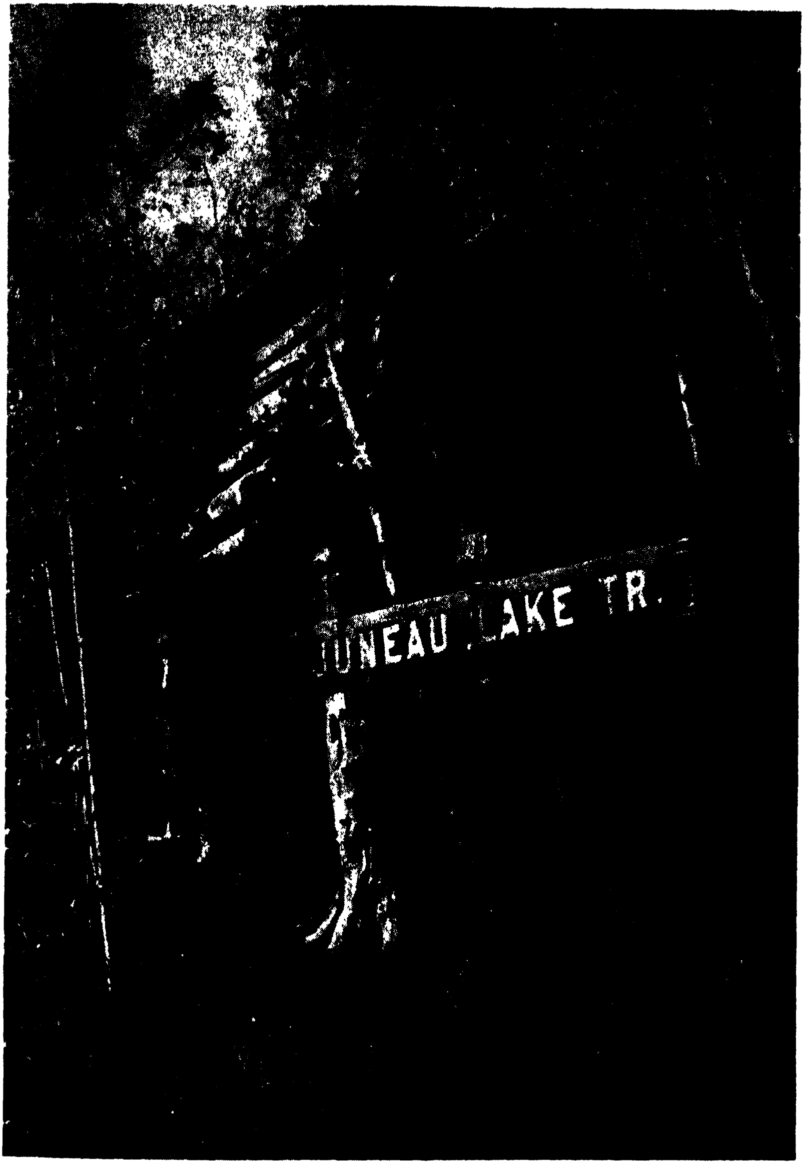
Continuity of motion is broken when there is a sudden change in travel direction. For example, anglers set out for a day's fishing with their canoe headed up stream. They can disappear around a bend in the stream, but all sequence scenes about the day's trip should show the canoe going up stream, until the anglers turn back for camp—then the motion is all down stream.

Direction of movement requires careful watching on such simple scenes as hunters going through a woods in search of game. Travel across the screen should be in one direction at the start, and reversed at the end. This may sound silly because hunters beating a cover travel in many directions, but if you show one scene where the hunter walks from right to left, then follow it with a left to right movement, the audience gets the impression he's returning. If, at the end of the day's hunt, the motion is reversed, the idea of going somewhere and returning is told with good sequence of motion.

Title as You Go

Reference has already been made to the use of street and city signs as a method of collapsing space. There are many other kinds of signs that can give you everything from a main title to numerous sub-titles. They all save you titling time and expense.

On a bass fishing trip in Maine I photographed a shore dinner from start to finish. The finish was dousing the fire. Later in the day I made a close-up of a forest fire warning



Cache, Kenai Peninsular, Alaska. Rustic signs make choice on the spot titles—they tell where you were.

sign tacked to the bole of a spruce tree. Editing put this sign in front of the dousing scene, thus stressing good woods practice much more effectively than any studio made title could ever do.

Roads leading to a field trial were posted with arrows reading, "Field Trial." A close-up of one of them made a title suggesting objective travel. At the entrance to the club grounds where the trial was held, a large sign reading, "Slow —Dogs Running," added another significant title. This title was followed immediately by a scene of a pointer crossing the road.

Wherever you go, you'll see ready made titles. Make a note of them if the sun is not in the right place at the time; calculate the time of day when the light will be best; then fill your view finder with the sign—the closer the camera, the more readable the movie scene.

You can scratch your own titles in the sand or snow—photographing them with a strong cross light accents the lettering. Chalked titles on the sides of a tent or a piece of driftwood are easy to make, easy to photograph, and they have an outdoors feeling about them.

Writing a Scenario

A scenario is a brief outline of a photoplay. There are three kinds of photoplays: silent, in which the action is described by titles or running comment by the person exhibiting the picture; sound, with a sound track and commentator voice; and sound, with conversation. The latter is well represented by the feature picture at your neighborhood theatre, while the news reel is usually a combination of voice and conversation.

The silent picture is the popular one for amateur outdoor movies on account of the expenses involved in adding a sound track, and the prohibitive cost of toting sound recording equipment to haunts of game. It is also the favorite of the popular lecturers who describe their pictures as they go. In this respect, the silent picture has a commendable advantage in that the exhibitor can fit his chatter to the audience before him. This same advantage holds true for the home movie, whether it's a family showing, a church social, or a Rod and Gun Club get-together.

Planning the scenario should start with a general idea about the length of the picture to be made, but not the way I heard it at a dinner party where an Alaskan big game hunt was on the boards: one hunter suggesting 250 feet, another 1000 feet. When questioned, neither of them had the foggiest idea about what they intended photographing or how long their movies would run even if they were 100% good. After telling them about screening time, they settled on 600 feet. Assuming a 25% loss of their scenes, they would still have extra editing footage for the making of a 400 foot reel (16mm)—a 16½ minute show.

This table gives the timing for 8mm and 16mm film.

Film Timing for Scenario Writing

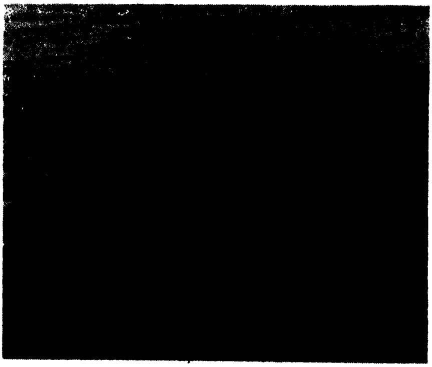
Camera and projector speeds at normal or 16 frames per second

Film size	Length of film	Take time	Number of scenes—average scene 10 seconds	Screening time
8mm	25 foot roll (50 feet after processing and dividing)	4 minutes 10 seconds or 250 second	25	4 minutes and 10 seconds
16mm	100 foot reel or 2 50-foot magazine loads	4 minutes 10 seconds or 250seconds	25	4 minutes 10 seconds

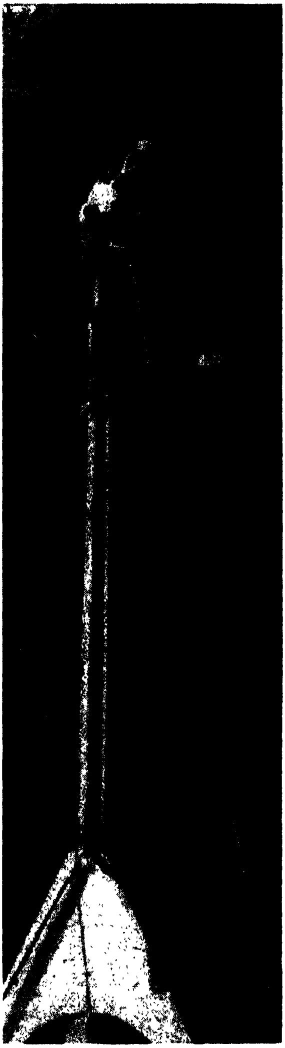
The scenarios from which I work are as brief as the contents page of this book. In addition, there is always provision for a number of extra, on-the-spot scenes. At the time the brief outline is made, one or more temporary main titles are suggested. They are temporary because the action in the picture may change them as it did one tuna fishing picture where a series of scenes gave the picture its title,

Swordfishermen, North Atlantic. Schooner Robertson under auxiliary power on the fishing grounds.

The eyes of the ship are aloft—headmastman and crew members look for finnin' swordfish.



This is what they see: dorsal and tail fins of a swordfish near the surface.

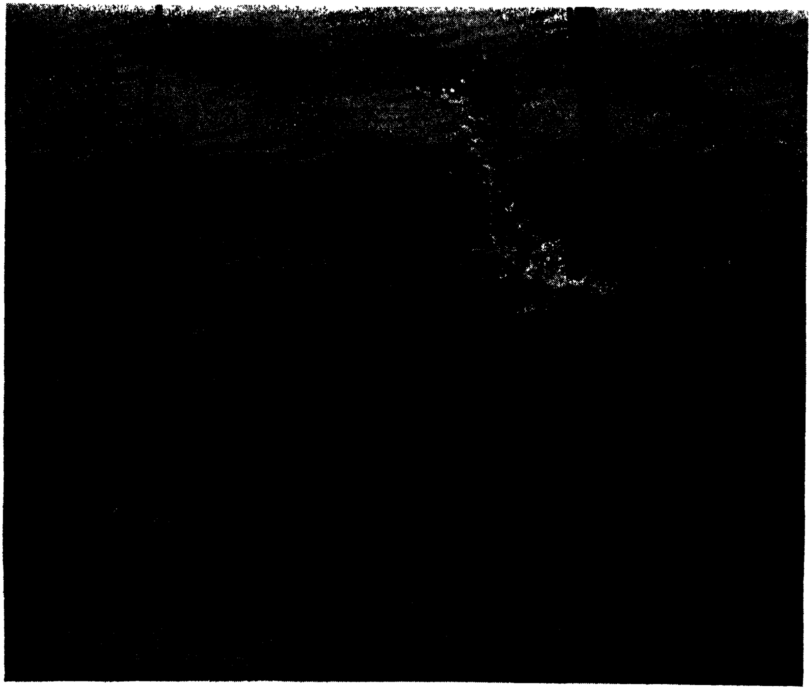


Signals from headmastman to wheelhouse puts bowsprit of schooner over fish—striker throws the "iron"—pole is retrieved leaving dart in fish.

"Tuna by the Tail." In these scenes, a 528 pound tuna, with tail fouled in the wire leader, was "pumped" to the boat, tail first, and on the surface of the water.

The planned gag will ever be with us—on the air, screen, and stage. In a fishing picture, one member of the party was shown tying a fly while his partners waded into the stream. During the entire picture, scenes were cut in showing the angler at work on his fly. In the end, the anglers retired from the stream with their catch—their companion still busy with his fly. An angler putting a patch on a rubber boot would serve the same purpose.

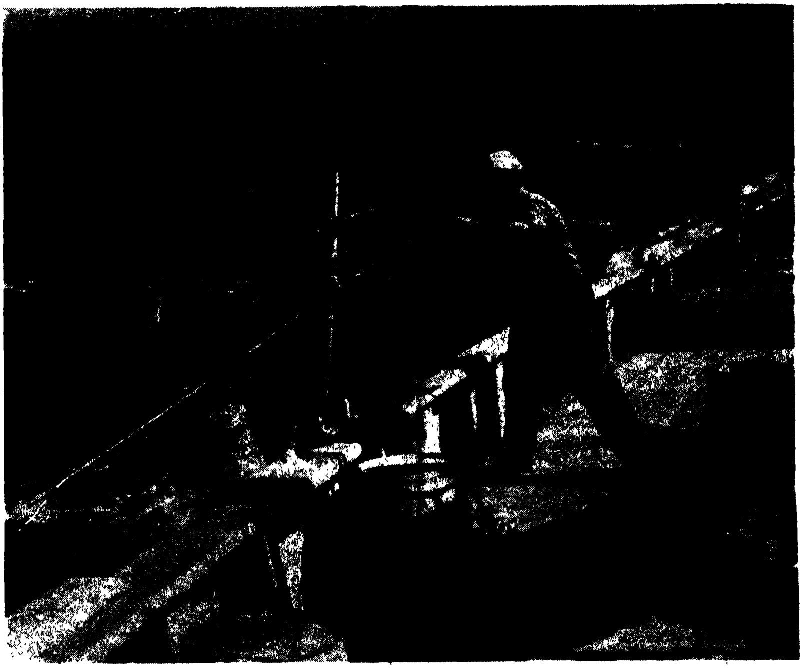
Hurry-up scenes—made by setting the camera on 8 frames per second—on all kinds of action, especially eating, will



Strike! Rope along pole is attached to dart—runs aft to cookie's station.

always produces a laugh. This camera setting speeds up action by 50%.

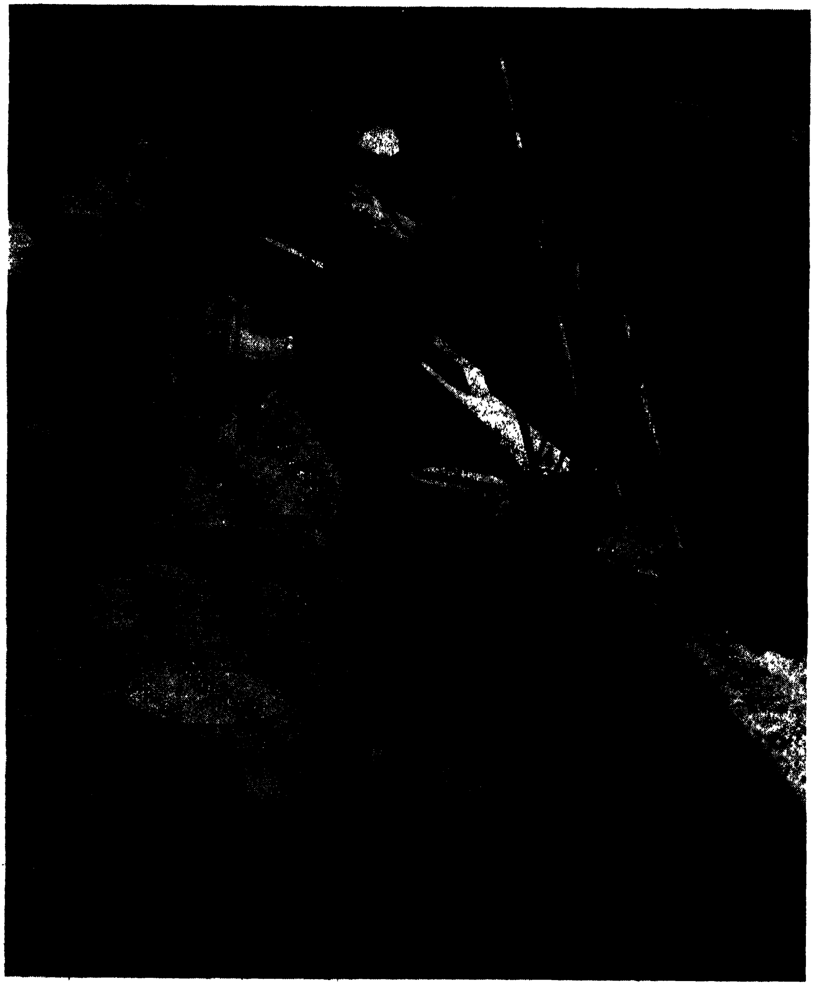
Most surprising of all is the reverse motion gag. I once used this scheme on the end of a bass fishing movie. To make the scene we kept two large bass of the same size, alive on the fish stringer. The first scene—made with the camera upside-down—showed an angler with his guide, standing on the bank facing a lake. The first live bass was in the angler's hands and, he tossed it into the lake. Both angler and guide were instructed to hold their exact positions. Meanwhile, the second live bass was placed in the angler's hands in the identical position of the first one before he tossed it into the lake. The second scene—with the camera right-side-up this time—starts with the angler examining the bass in his



Cookie throws out 100 fathoms (600 ft.) of rope—then the keg.

hands, while the excited guide waves him to put it back. The angler then walks to the lake and gently places the bass in the water—close-up shows the bass swimming away.

When spliced in right-side-up, scene one gives the impression of a bass jumping from the lake into the angler's



Cookie feeds fresh dart to striker—puts another keg and coil of rope in throwing position.

hands. The second scene completes the realistic action which should be done with live fish.

Continuity in Still Pictures

What has been said about planning a motion picture, applies equally well to stills. For every sportsman carrying a motion picture camera, there will be many who prefer the still camera in the field. This is especially true of the sportsman who may later wish to submit his hunting yarn for publication in one of the outdoor magazines. No matter how perfect a motion picture may be, it can't be published in satisfactory form. Editorial requirements are for sharp glossy prints—preferably 8 x 10. 16mm frames enlarged to this extent lose too much detail.

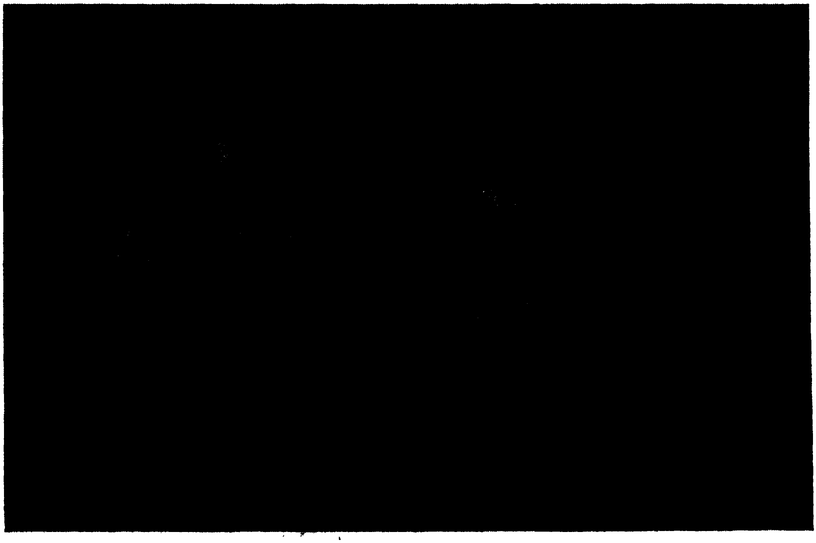
The ideal is to carry both still and movie camera; shooting the movie scenes as planned, and making still pictures

Doryman rows after keg. Note foghorn tucked inside of dory—used to signal schooner during fog.

to tell the same story. But every sportsman who has tried the two camera plan knows the drawbacks: lack of good light, barely enough game showing to produce an acceptable movie, or both. Under such circumstances there is only one thing to do: forget about one of the cameras and concentrate with the other.

Revere Camera Company's new DIAVERSAL paper and developer has interesting possibilities for the fellow who wants to make black and white stills from his movies. In the past, the only way to translate movies to stills was to make a negative and from that a positive still. The DIAVERSAL paper and developer is a simple and direct way of making prints without the bother, and loss of detail, of making a negative. Prints from good 16mm frames can be enlarged to 4 x 5 with excellent definition.

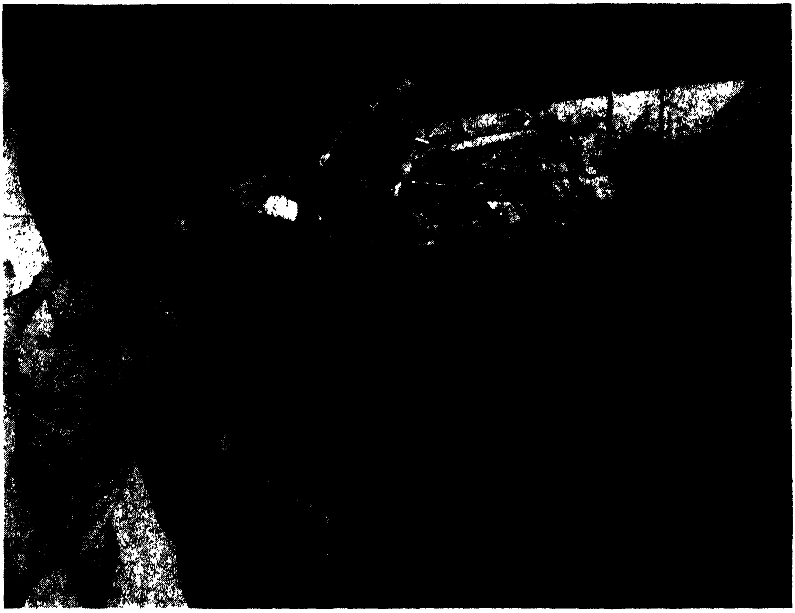
Color slides are more popular today than ever before. Improvements in slide projectors, development of hand and



Doryman stands as he plays fish with rope over grooved wheel mounted on gunwhale.

desk viewers have played an important part in making the color still the favorite that it is. And there is something about slides that is restful; but more important is the ease with which they can be shown without racing against the movie projector to get in all that's to be said before the next scene demands its particular comment. The slide is on the screen for full comment and can be projected again and again without running the whole series.

35mm color slides (2 x 2) have about everything a sportsman desires: when well planned and arranged, they tell the story in full color; they are used extensively for magazine color illustrations; make superb Christmas cards; and from either kodachrome or Ansco color positives, black and white glossy prints can be made to meet the demands of the most critical editor.



Returning to schooner doryman tosses painter—swordfish is lashed to gunwale of dory by the tail.

The number of stills required for story telling purposes depends upon the nature of the subject covered, and the extent to which it is detailed. Let's take a two weeks cruise on board a swordfisherman in the North Atlantic for example.

While "ironing" may not be the most sporting way of taking big fish like the broadbill, it is not without the element of sport. It requires back-breaking work, but any angler who has been in the fighting chair with rod and reel and a quarter ton of tuna or broadbill on the other end of the line, knows all about an aching back. It takes the keenest of vision to spot a "finnin' " broadbill from the masthead,

Block and tackle is used to bring the swordfish on deck—this one dressed out at more than 400 lbs.

and teamwork to put the bowsprit of a 93 foot schooner over the fish. The aim of the man in the "pulpit" must be true; playing the fish from a dory calls for brawn, and it can be dangerous. These were the highlights around which picture taking was planned—only the action itself determined the number of pictures necessary for a good story. The selection reproduced is from 75 negatives made on the trip.

Chapter 2

FIELD EQUIPMENT

Selection of Equipment

When you purchase photographic equipment of any kind, the manufacturer furnishes you with instruction leaflets. This is his service to you. As the manufacturer of this equipment, he knows its mechanical details, points to its features, and tells you in simple language how to use his product. It is not the purpose of this book, and space certainly will not permit, repeating such instructions. My strongest recommendation is that you study such printed matter, and having absorbed it, file it for ready reference, or better still, tuck it in your camera case for reference in the field if necessary. If you have purchased used equipment, it is quite probable that instruction sheets will not be handed down to you. Then write the manufacturer of the equipment or call on your local photo store for the missing literature.

If cave dwelling hunters of thousands of years ago were imaginative enough to record their game subjects with sticks, bones, fingers, and clay, then we, with science giving us the tools and telling us how to use them, should be resourceful enough to make good pictures at the start. Cro-Magnon man knew what he wanted *before* he started daubing his murals. The cardinal principle of good photography is: *know the kind of pictures you want to get,* then select the kind of equipment that will make them best. The sportsman's fundamental knowledge of his subjects should make the problem an easy one.

Aside from what you want a camera to do for you, there is the physical aspect of toting it under circumstances when every ounce added to the pack sack seems to sit like a flatiron. Obviously, the first considerations in the selection of field equipment are: weight, compactness, and quality—quality of course dependent upon your aim as well as your pocketbook.

At first glance the endless array of cameras for professional and amateur use is confusing—the confusion further magnified by myriad accessories and advertising claims. It is well to observe at the start that a camera, any camera, is simply a box with a lens on one side and film on the other. The distance between the normal lens and the film determines the size of the picture—the greater this distance, the larger the picture and the more bulky the camera.

Selection of the still cameras therefore falls within the bracket of cameras producing negatives from 1″ x 1½″ (35mm) to about 2½″ x 2½″. These cameras meet the specifications as to weight, compactness, and quality, but there's a deadly trap here in the form of an enthusiastic salesman, versed in claims but lacking practical experience. The trap is simply this: small negatives must have sufficient detail to permit enlarging to 8″ x 10″ prints. The camera taking small pictures should be a precision built instrument with special emphasis on the lens. Unfortunately there are entirely too many cameras on the market with lenses that will not produce negatives capable of enlarging at all and in some cases large portions of a negative will be out of focus. This is known as lens coverage. A well made lens will render all the negative in sharp focus.

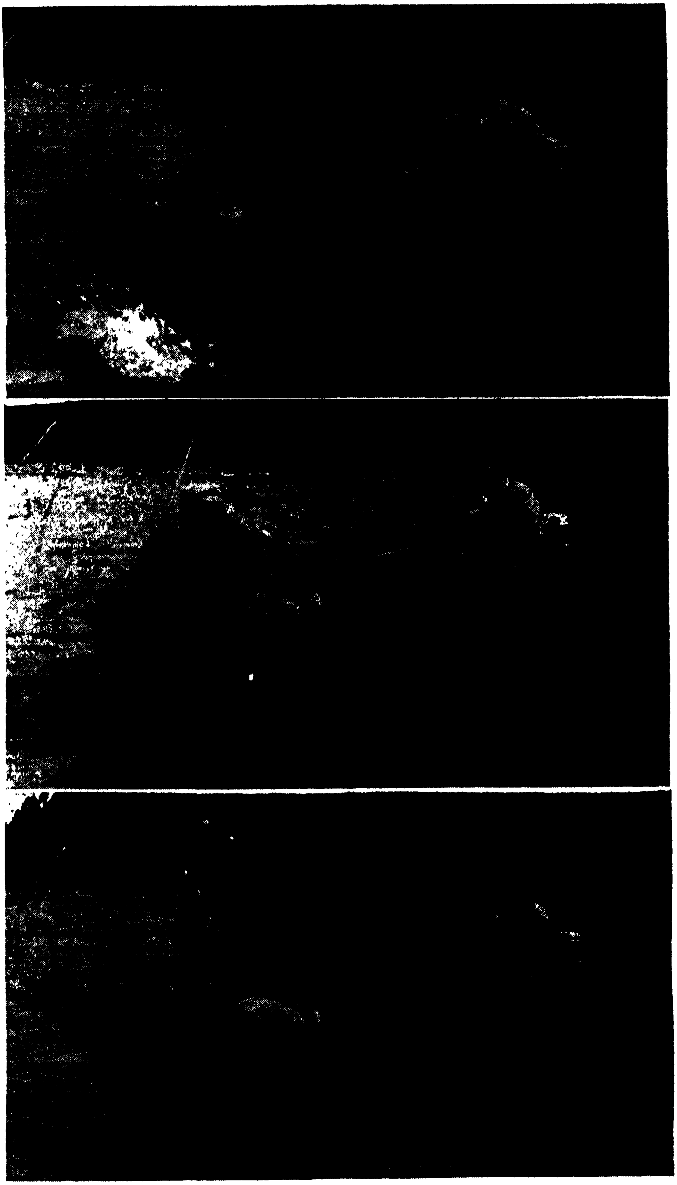
With extremely fast black and white film available these days, lens speed is not too important—*f*/3.5 or *f*/4.5 lenses are fast enough for outdoor work even under poor light conditions. While it is true that color film is comparatively slow, it must be remembered that color in all its glory exists only when the subject is flooded with light. Color shots made under poor light conditions are pretty much a waste of expensive film. If a sportsman is looking for sparkling color transparencies, then the lens speeds stated above are fast enough when the light is good. Under subdued light, or no light at all, synchronized flash equipment is the answer and here again lens speeds need be no higher than those stated.

In bright sunshine a lens speed of *f*/3.5 will permit shutter speeds of 1/100 sec. over land, and 1/200 sec. over water with color film.

The next thing to look to on your future camera is the shutter speeds which should run from "time" (you'll need it on some sunset scenes) and fractions of seconds up to at least 1/200 sec. Jumping fish, fast game on the move, and birds on the wing, about which I have more to say in Chapter 9, call for shutter speeds of 1/500 sec.

If your selection is a reflex camera, focusing will be done on ground glass; otherwise you should select a camera with a built-in range finder coupled to the lens so that having set the range, your camera is automatically focused on the subject.

With the advent of color film, visual education by the use of slide film projection spread through the military services, industry, and institutions of learning. There is a sense of restfulness about the slide that is lacking in the motion picture; and there is no racing against time when a slide is projected—it can be described in detail, changed at will, or referred to again and again. For these same reasons slide projection for home entertainment has swept the country, unseating to a large extent the snapshot album.



Smallmouth Bass, St. Croix River, Maine. When made in rapid succession, a series of still pictures produces a feeling of motion. 35mm camera with standard (50mm) lens; 1/500 sec.

If the making of color slides is your photographic aim, the 35mm camera is now the choice because the processing of 35mm color film now includes mounting each picture on a 2″ x 2″ cardboard mount ready for projection.

For general work in color or black and white a standard lens (50mm) is satisfactory, but if you plan to do serious outdoor work, you should get a camera with interchangeable lenses: wide angle, standard, and telephoto. The wide angle lens will be most useful when making pictures of a fishing companion in a small boat or canoe where distance from camera to angler is very short and a standard lens will not cover the subject. A telephoto lens does two things for you: gives you close-ups of small objects such as a woodcock on its nest, a fly book, or the rod grip of your companion; and it closes the range for you on wary game.

The outstanding advantage of the 35mm camera is the speed with which a series of action shots can be made without dropping the camera from shooting position. One operation—the turn of a knob—sets the shutter, pushes the film ahead, and counts the exposure. This advantage produces the startling sequences so much in demand today. Such rapid shooting is made possible by another important advantage: the great depth of field (distance between the nearest and farthest objects in sharp focus). A 35mm camera equipped with a standard* 50mm (2 in.) lens set at a range of 30 feet, with lens aperture at *f*/9, has a depth of field from 14′ 4″ to infinity. With the same setting, a camera designed for a standard lens of 135mm (5¼″), will have a depth of field from 26 to 35′—only 9′. An object moving in or out of this narrow field would mean resetting the camera range, with loss of time and probable loss of sequence.

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* *The standard focal length of a lens is the distance from the lens to film when the lens is set at infinity. This distance is about equal to the diagonal of a negative made in a camera equipped with a standard focal length lens.*

Depth of Field Calculations

Fortunately the better lenses being built today for stills and movies have depth of field scales etched on their flanges or barrels. A quick glance tells you the depth of field at given ranges and *f*/settings. Some lenses have a "universal focus" mark on them, which means that when these lenses are set at the indicated range mark, the depth of field extends from infinity to a given distance from the camera. Objects within the minimum sharp focus range are brought into focus only by resetting the range. There is no such thing as a "universal focus lens." The use of these words by lens manufacturers has accounted for more out of focus pictures than any other single factor because of their implied meaning. For all lenses so marked, there is a camera to object distance (minimum) within which everything is out of focus, and worse, these lenses cannot be set for close-up work.

Lacking lens markings, some manufacturers supply you with depth of field tables which you should memorize or carry in the camera case. Others supply formulas and information from which you can make your own calculations.

Reflex Cameras

My second choice from the camera shelf is a reflex camera making negatives 2¼ x 2¼. There are many sportsmen who, through lack of practice as much as anything else, object to the direct view finders on 35mm cameras. It must be said in favor of the larger negative that contact prints can be examined without a magnifying glass, although the film cost is somewhat higher.

There is a wide selection of models and price tags in this camera class. The favorite is the twin lens model: one lens through which the operator views the ground glass image, and a second lens which projects the image to the film. The viewing lens on most of these cameras does not have an iris diaphragm. Therefore the depth of field showing on the ground glass is not the true one and must be calculated from tables. Precision-made models have refinements for depth of field and parallax corrections. Some have adapters for the use of 35mm color film. For the sportsman who does not object to the extra bulk, a twin lens reflex camera is an excellent selection and an easy camera to operate.

Flash Equipment

Carrying a camera without synchronized flash equipment is almost as bad as leaving a book of favorite flies at home. Without it you are entirely at the mercy of the elements by day and completely bushed by night. The woods are literally full of flash subjects: on dull days, deep shadows, a coon hunt, night fishing, scenes within camp, night stalking (see Chapter 12), and many special effects employing both sunshine and flash.

A full description of the use of flash equipment would not make practical reading matter in a book of this kind because of the great variety of fields it would have to cover. The best advice I can offer is that you purchase flash equipment for your particular camera; have it synchronized, follow instructions, and then test with a few exposures before starting on a trip. Be sure to have fresh batteries in your outfit. The yearly production of millions of flash photographs by amateurs and professionals testifies to the simplicity of flash photography.

The simplest type of flash equipment is a hand battery unit with reflector. The camera, hand held or on a tripod, is set on *time* or *bulb*. The shutter is then opened, the flash set off from any desired angle, and the shutter closed. This is known as the "open flash"—all the light from the flashbulb is utilized. It is most effective outdoors where a flash reaches only half as far as it does indoors since there are no walls to reflect the light. On night photography on birds and animals I frequently use the open flash method because it does reach out. For this work I use a G.E. No. 50—one of the most powerful of all flashbulbs. Moderate but not fast action (deer jumping) can be stopped.

The most convenient flash is the synchronized one attached to the camera. This is the type used by all news photographers. The purpose of the synchronizer is to open the shutter at the instant the flash has reached its highest intensity. This enables the photographer to select shutter speeds capable of arresting the action before him. Synchronizers are of two general types: *manual* when the shutter is released by hand and the batteries used to fire the flash only; *electrical* when the batteries fire the flash and trip the shutter as the circuit is closed by hand. Cameras with focal-plane shutters—Contax, Leica, Speed Graphic—require a special type of built-in synchronizer and special flashbulbs. At the same shutter speeds, the opening and closing time of a focal-plane shutter is longer than for front lens shutters. This means the use of flash bulbs with longer flash durations. Such bulbs have been developed by G.E. (No. 6 and 31), and Wabash (No. 2, 2A, and 2B).

The general trend is toward the midget type bulb with its quick change bayonet base. These efficient little bulbs are the favorites of the press and can well be the sportsman's selection because they take up so little space—they are only 2½″ long. Improvements in reflector design have increased the efficiency of the midget bulb to a point where it is capable of covering around 90% of ordinary flash problems.

Synchronizers are built to close tolerances—the slightest bump can throw them off. Press men have told me they check their cameras for synchronization and battery life before every assignment. From this statement the sportsman takes his cue.

Correct flash exposures are based on flash factors or guide numbers for every type of flashbulb, film speed, shutter speed, and reflector used. This sounds like a brush pile of details but the formula is just as simple as kicking a cottontail out of the same pile of sticks. Here's how it works:

1) The flash factor of a G.E. No. 6 in a specified reflector is 92 at 1/100 second, with film speed rated ASA 80 (ASA ratings accompany every roll of film) for artificial light.

2) Divide flash factor 92 by the reflector to object distance for correct *f*/value. Assume this distance to be 20 feet.

$$f/\text{setting} = \frac{92 \text{ (flash factor)}}{20 \text{ (distance)}} = f/4.6$$

After you have purchased the flash equipment for your camera, paste this formula on the inside of the camera case together with the flash factors that apply to your outfit—film, flashbulbs, and reflector. All this information is contained in the instructions that come with the outfit. For your test exposures outdoors (referring to the formula), start at *f*/3.5 which is approximately one stop larger than the flash factor indicates. Inside camp scenes at close range will often have "hot spots"—an over exposed area where the beam of the light is concentrated. Solution to this is diffusion of light by placing a white handkerchief over the face of the reflector. On account of cutting down the light output of your outfit, you now compensate by opening the lens diaphragm by one stop.

The sportsman whose still camera is loaded with daylight kodachrome can switch to a "daylight blue bulb" (Wabash No. 2B) and shoot his color indoors without changing to type A kodachrome (indoor); he can use this same bulb outdoors to "fill in" on dull days; and if he stumbles on the nest of ruffed grouse in the shadow of conifer or hardwood, the blue bulb will get it.

Selecting the Motion Picture Camera

With fewer models for selection, movie camera recommendations are much easier than for still cameras. Decision number one is between 8mm and 16mm. There is a saving on the initial cost of camera and projector, and especially film for the 8mm outfit. For the person making strictly family movies, the 8mm camera is most convenient and economical; but it is a well known fact that such movies hold little or no interest outside the immediate family. Being less personal, the sportsman's movies of fishing and hunting trips are of interest to a great many people, and if well edited, are in demand by various clubs. Showings on large screens demand 16mm equipment.

One may not be too serious about movie work in the beginning, but once bitten by a series of outstanding scenes, the hobby grows to unpredictable heights. Then the inevitable change, and an expensive one, from 8 to 16mm. Now there are two sizes of film to be shown, two projectors, and the initial saving has vanished. True, the cost of 16mm film is considerably greater, but it can be controlled and usually is the smallest item on the vacation budget.

Compactness, weight, and ease of loading are of special interest to the sportsman in the field. There is nothing more annoying than running out of film in midstream with the full glare of the sun on the camera and no shade for change of film. A camera taking 100 ft. rolls has to be opened and sprocket threaded. No matter how carefully this is done in daylight there is always the chance of light struck film at start and finish. In a skiff or canoe a raincoat can serve as a shade maker and you have your lap or the bottom of the boat on which to place the camera and film rolls. You're in a real jam though, if caught in flooded pin oaks or a cattail marsh in hip boots with no shade and nowhere to place the camera.

The logical answer to all these problems is the convenient magazine loading camera with which reloading is as easy as dropping shells in a scatter gun. Too bad this type of load is not made for 100 ft. rolls because two 50 ft. rolls cost about 30% more than a single 100 ft. roll. Some of this excess is cancelled by light struck footage on 100 ft. rolls.

One of the objections to the magazine loader is its comparatively low spring capacity (number of feet exposed before rewinding) of 11 to 12½′ against 18 to 25′ for 100′ loads. This can be a real handicap when a break in action is not desirable—scenes must be watched and timed closely.

Regardless of the length of a reel, there comes a time when the footage indicator reads 5 or 10′ left to go. If the action before you is liable to run to more footage, put in a fresh cartridge; the footage left on the one taken out can always be used on short scenes. This quick change is not possible with 100 ft. roll cameras; and it can be the difference between a full scene or just part of one.

For extreme close-up work requiring accurate, through-the-lens composing and focusing, the cartridge viewer is a most useful and easy-to-use accessory. This viewing device is shaped to occupy the magazine space in the camera. When placed there, the entire picture area can be viewed on ground glass, as well as through a built-in magnifying glass for critical focusing. Close-ups of baits, flies or fragments of Nature are thus made easy. For such work the camera must be on a tripod while the film magazine is removed, the focusing device put in place, and the film again placed in shooting position.

Eight, 16, 24, 32, and 64 is the common range of camera speeds (number of frames exposed per second). The most useful ones are 16, 24, and 64. Of these, 16 is standard silent speed; 24 must be used when exposing film for sound track or television; and 64 for slow motion analysis. 8 is used for "hurry up" scenes as a gag, or on sunsets.

For most field work, lens selection will include: 15mm wide angle; 1″ standard; and 3″ telephoto. By all means get lenses in focusing mounts rather than the "universal" focus lenses previously mentioned. Depending upon their focal length, and design, lenses in focusing mounts can be brought to sharp focus on objects a foot or two from the camera.

With careful stalking, a 3″ (3X on 16mm) lens will produce remarkable close-ups of game, and it is comparatively easy to hold steady. At a camera to object range of 4′, a 3″ lens has a picture area of only 4¼ x 6′—small enough for excellent close-ups of baits and flies, wild flowers and the like. A 6″ (6X) lens does a better job on long range shots, but holding a 6X lens is another problem. Those who have looked through a 6X rifle scope offhand, know how the cross hairs jump around the target. The same holding problem applies to telephoto lenses—every movement of the camera is magnified according to the power of the lens in use, and in turn, these movements go on the movie screen, magnified.

If you are the owner of a 35mm camera with interchangeable lenses, you have the finest of telephoto lenses for motion picture work. All you need is an adapter to fit them to your motion picture camera. With a set of lenses interchangeable for still and movie camera, the original investment is reduced along with the load to be packed and toted. The standard 50mm (2″) still camera lens makes a 2X movie lens; 75mm, a 3X; and 135mm, 5¼X. Adapters can be purchased at any good photo store.

A turret head mounting 2 or 3 lenses is always of advantage; close-ups and long shots are liable to occur at every bend in the river. Bell & Howell, and Revere make a magazine loading camera equipped with a 3-lens turret. This does not mean that a buyer has to fill all lens sockets at the start. My selection in the order of their usefulness is: 1″ standard, 3″ telephoto, 15mm wide angle.

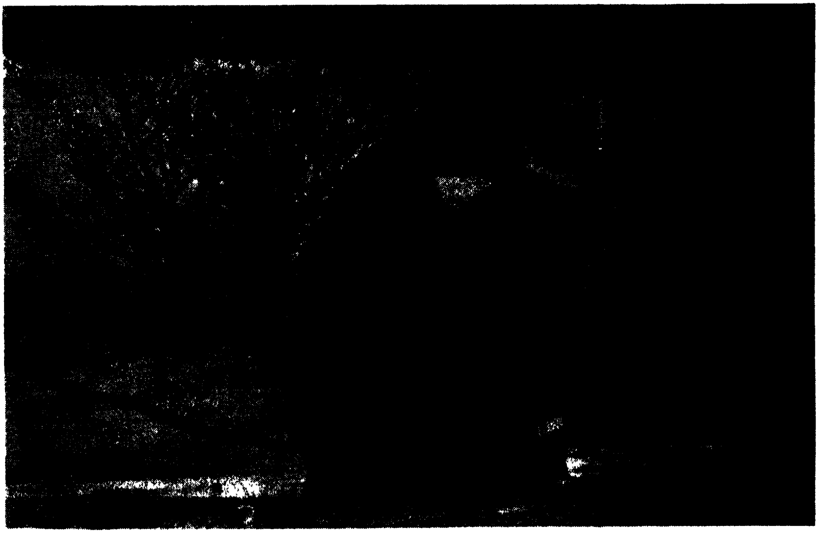
At this point the reader may well ask why in thunder so many people carry motion picture cameras using 100′ rolls. There are a number of answers: the owners may have bought them without a knowledge of field problems and camera performance; or the man behind the counter put over a big sale. The professional and serious amateur whose camera produces revenue, has other reasons. His film purchase is not by hundreds of feet but by thousands. The 30% additional cost of buying 50′ rolls is a serious item with him. Cameras built for professional work have many built-in features: frame counters and back winding apparatus for lap dissolves; precision correction for parallax; ground glass viewing through the lens; greater spring capacity; hand cranking or motor driven attachments for the filming of long scenes; and external magazines with a film capacity of 200 or 400 feet.

Tripods vs. Gun Stocks

According to the records, the first gun camera was invented by Marey in 1882. Since then, and especially during the past ten years, various applications of the idea have been put on the market—most of them quite elaborate and expensive. My addition to the gun stock idea is described and illustrated in Chapter 9.

The purpose of a stock when fitted to a rifle or camera is

Blue Geese, Vermilion Bay, Louisiana. 35mm camera with 135 lens (2.7X). Note shallow depth of field when using telephoto lenses at close range—geese (snow goose in foreground) were only 30 feet from blind.



Gun Camera, Eye-To-View Finder Technique. Stock built of ¾ in. pine with pistol grip.

to lessen the movement of barrel or lens. From prone to offhand shooting positions, a stock for a camera does exactly what it is designed to do for the rifleman. As such, it is a most useful attachment in the field when snapshooting is the order of events, and the setting up of a tripod, time consuming.

In the hands of a rifle shooter a gun camera can be held rock steady, thus permitting the use of telephoto lenses. The rifleman knows how to rest both elbows on a mound or rock; he drops to his knee for an elbow rest; or he holds the camera against a stump or tree as he would the barrel of his rifle.

A camera stock should be short enough to allow the eye to come to the view finder when filming at normal speed. Shooting at arm's length with open sights on the camera (see Chapter 9) is the surest and quickest way of catching fast moving animals and birds on the wing for slow motion action. Camera stocks have been built with trigger coupled to the shutter release. Unless precision built, the coupled action is far from smooth. Pressing the button as you do, without aid of camera stock, is positive and it simplifies stock design.

At its best, a camera stock is by no means a cure-all; but rather a substitute for a tripod when the setting up of a tripod would most certainly mean the loss of precious action. There are places (one of them is in a canoe) where a tripod will not work. The tripod has its inning when working at close range on small objects requiring critical focusing; and panoraming is smoother when done from a tripod. It is a must for time exposures with a still camera; or if you wish to include yourself in a picture, a delayed action shutter release does the trick with camera on tripod set-up.

When photographing from blinds with camera prefocused on a bird's nest or an expected area of action, a tripod steadies a telephoto lens, and, with camera in shooting position, motion within the blind is reduced to pressing the button.

The over-all opinion is that when scenes and conditions allow the use of a tripod, the resultant motion pictures are consistently smooth. Select a tripod for its sturdiness first, then compactness and weight. The correct set-up for a tripod is with one leg under the lens or straight behind it.

Exposure Meters

The exposure latitude of films allows for some errors in exposure judgment. The ideal camera would be one with a light-sensitive diaphragm, like the retractible aperture in the iris of the human eye: opening when the light is dim, and closing to brightness. Such a robot device would in turn be coupled to shutter speeds and all exposures would be perfect. The fact that the apertures of our eyes do change, is a compelling reason why they are not reliable as exposure guides.

With the introduction of the first battery-less photoelectric exposure meter by Weston in 1932 the two camera settings of aperture and shutter speed were no longer a matter of guesswork. With the aid of this light measuring device the modern photographer is able to broaden his field to the taking of pictures under the most difficult light conditions. In evidence of the popularity of these meters, photo stores now carry models by numerous manufacturers.

In buying a meter get only the best; read the instructions; and use the meter on every scene and from every angle photographed. A General Electric meter, type PR-1, is my present favorite on account of its "memory" button: when a light reading is made, the pointer remains at that reading instead of going back to zero as it does on other meters. Re-checking exposures later on, the meter tells me what my last setting was.

If you can't afford a good photoelectric meter, don't buy a substitute. Your best bet then is to follow the "sky charts" and other kinds of exposure suggestions enclosed with every roll of black and white and color film.

Filters

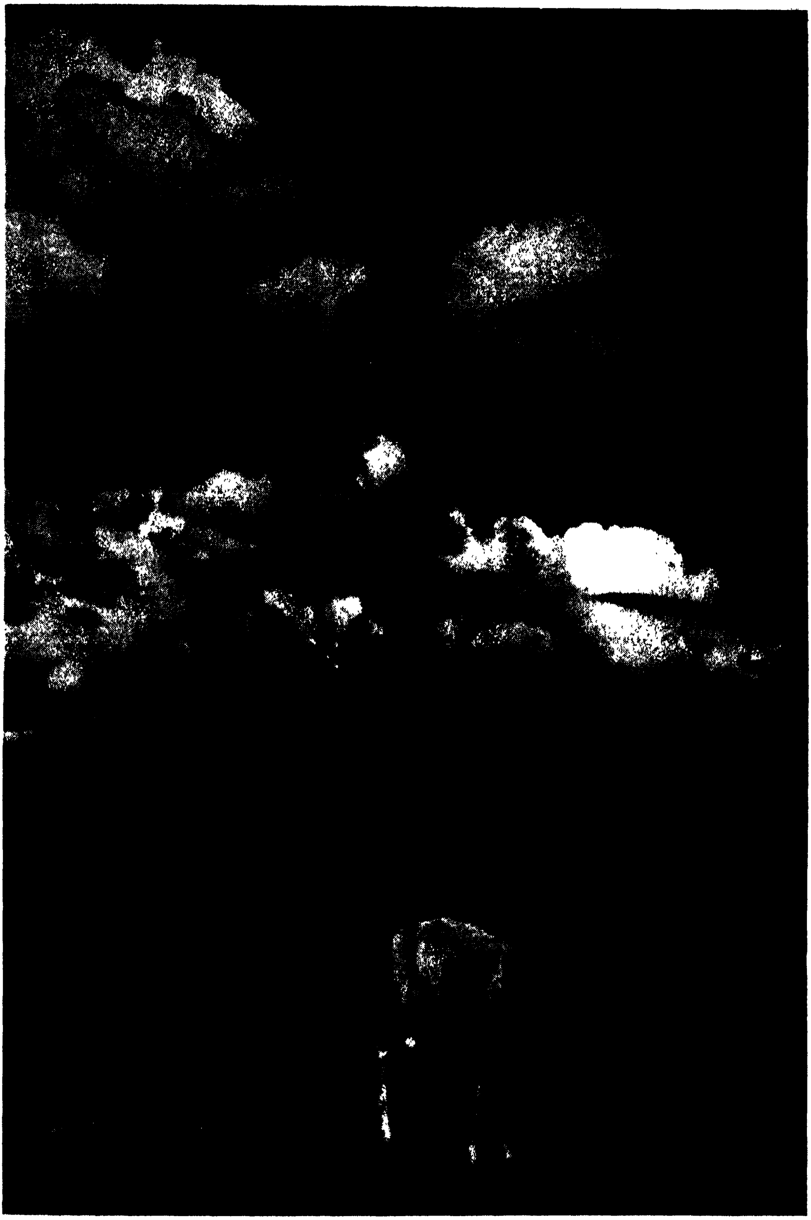
A filter is simply a screen which absorbs color, allowing one or more colors to pass through. There are three general types: 1) Gelatin leaf; 2) Gelatin leaf enclosed in glass; 3) Colored optical glass. All three are satisfactory, but for outdoors work, optical glass is best because of its durability.

Because a filter absorbs light, less light reaches the film. This means that exposures must be increased to compensate for the loss of light. In photographic language this is known as a filter factor which varies with the type of filter used as well as the kind of film in the camera. A filter factor of 2X means that the exposures are doubled when the filter is in use. Example: when correct exposure without filter is 1/200 sec., then with filter it will be 1/100 sec. If the shutter speed of 1/200 is maintained, light compensation is made by opening the lens diaphragm by one stop.

There are dozens of types and many makes of filters designed for photographic purposes. Only a few of these are of practical use to the sportsman:

Wratten No. 8 (K2)—A medium yellow filter recognized as the standard correction filter. It darkens blue sky for cloud photography. Excellent for use on snow scenes and beach scenes with sun glare on sand. Used with black and white film.

Haze Filter—An almost colorless filter for penetrating atmospheric haze caused by microscopic particles of water vapor in the air. The use of this filter should be limited to



Buck in Orchard. Wratten No. 25 (deep red) filter.

telephoto shots of distant scenes such as a mountain peak. For general pictorial work this filter flattens the landscape by taking out some of the blue and thus reducing the feeling of perspective. Used in the main with color film.

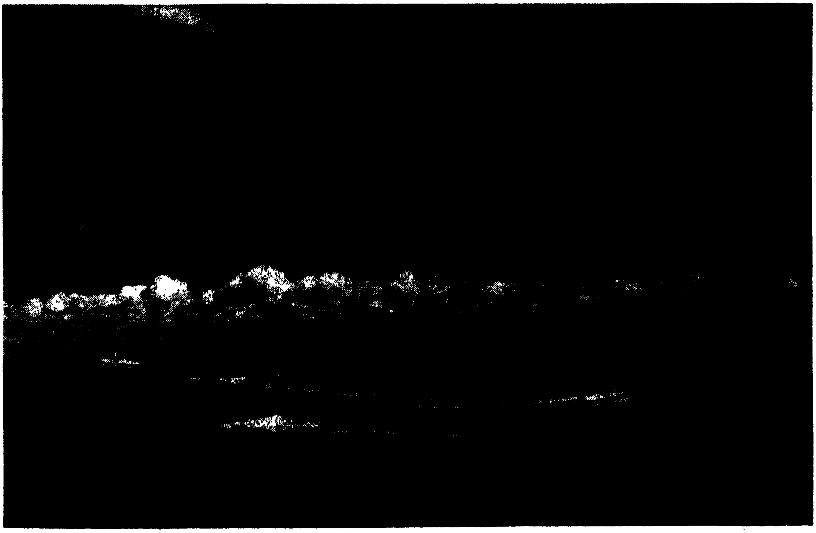
Blue and Orange Color Correction—The blue filter is used when exposing daylight kodachrome with artificial light; the orange when using type A (indoor) kodachrome outdoors. These filters are absolutely necessary when both outdoor and indoor scenes are made on one type of film. Used with color film only.

Pola-screen or Polaroid Filter—Two types; one for use with black and white and one for color. The latter is of special importance to the outdoorsman because it is the only type of sky filter for use with color film. Produces dramatic dark blue sky effects without distorting other colors of the landscape. On occasions when the unwanted reflections or glare over water or sand are so intense that they give color film a washed out appearance, the use of this filter produces fine color renderings. The filter is most useful in the making of close-ups of shiny objects such as baits and fish fresh from the water. Surface details on these are often hidden by glare which the filter eliminates. Although not of special interest to the sportsman, the polaroid filter permits photography of reflection-free scenes through window glass, but by the same token, reflection-free photographs of game fishes can be made through clear water.

Sunshades

Sunshades are among the least expensive of all camera accessories. Their purpose is to shade the lens from extraneous light and so prevent fogging of the film. With a filter on, a camera can be pointed in the general direction of the sun without direct rays reaching its lens. It is generally conceded that the use of a sunshade can improve picture quality

Flash! The author with full grown cheetah in cargo plane somewhere over the North Atlantic on the return trip from Africa. Good place for a wide angle lens and flash.



Tuna Boats, Wedgeport, Nova Scotia. A yellow polaroid filter accents in many instances as high as 50% or more, yet this simple camera device is little understood and never used by many owners of still cameras.

It is fortunate that all motion picture camera lenses have built-in sunshades; but the majority of still camera lenses come without them. In order to be completely functional, a sunshade should be so designed (slot type and others) that filters can be mounted at the back of the shade. Hanging a filter on the front of a sunshade defeats to a large extent the purpose of the sunshade.

Carrying Cases

I have yet to see a dust proof carrying case—it would have to be built like a mason jar or pressure cooker. The worst offenders are the ever-ready cases but they have the quick draw feature which we don't want to give up. A fair solution to the dust problem when traveling is a slightly oversize case. Cameras can then be wrapped in a light weight water repellent (balloon cloth or one of the new plastics). The fabric covering will keep out dust and moisture during travel when most dust accumulates; in a boat or in the woods, it makes a handy carpet for cameras and gadgets; and during fog, rain, or boat spray, serves as a quick and most effective camera covering.

The most important thing to look for in a camera case is the protection it gives its contents. A soft leather case has eye appeal, but dropping things is one of our settled habits. A sturdy case with strong carrying straps gives the best protection. Inspect carrying straps before hoisting them over your shoulder—buckles and stitches have a way of working loose. Never get caught with an old carrying case, as I did once on the bowsprit of a schooner with 150 fathoms of water beneath me. Fortunately the strap held until my feet hit the deck. I was then in position to break the fall of the camera with both hands.

Heat and high relative humidity are the special enemies of all film. Exposed but unprocessed film is effected more than unexposed. Loaded cameras and film should never be left in the sun for any length of time. If they are, and they may have to be at times, cover them with some fabric *other than black*. The best spot in an automobile for the transportation of cameras is behind the front seat away from the exhaust line. Loaded cameras, film, and exposure meters can be seriously damaged if left in a closed car for several hours during hot weather.

Winterizing

Cameras, like autos, can be conditioned to operate at low temperatures. Some are designed to do so as they come from the factory, others need checking before they are safe for work even at freezing temperature. A quick check before going after snow pictures can be made by placing a camera in the freezer space of an ice chest. If the shutter mechanism appears sluggish after a couple of hours, send the camera in for winterizing treatment.

During a month's visit with a beaver trapper in the Maine wilderness, I was caught with cameras winterized for 30 below zero. When the temperature went to 40 below I was stopped cold. What to do? Up to that point I had left all cameras outdoors because taking them in every night meant bad lens fogging. I knew that the reason of fogging was moisture in the air within the log cabin, but I reasoned further that at low temperatures the air outside was dry. So I built a small fire in the snow and held the cameras close to it until they felt warm. The shutters then worked perfectly and the lenses did not fog. Knowing this, I preceded the trapper on his snowshoe beat, built a fire near his sets, and was all ready for action when he pulled his traps. The lesson to be gleaned is to specify the lowest temperatures you expect to encounter when having cameras winterized.

Insurance

An insurance policy covering loss or damage by theft, accident, and fire, is urged for everybody carrying valuable cameras. A good policy will contain a detailed inventory of all equipment, fully described, with serial numbers included. A copy of this inventory will help you establish ownership, and it is most useful going through customs.

As this is being written I am making plans for a three months' photographic expedition to the Cameroun jungles of West Africa. Preparations involve pointers for the photo traveler taking cameras from one country to another; and the care and storage of film in the tropics.

Our equipment includes some foreign made cameras and lenses. These will be registered with U.S. customs before leaving the U.S. so that upon returning, they will not be subject to duty. Cameras and accessories made in the U.S. are re-entered duty free. There is no assurance that upon entering a foreign country duty will not be charged—that is a matter of interpretation by customs officers. Generally cameras and a reasonable quantity of film are not restricted. A copy of the insurance policy will serve as proof of ownership on the trip.

Care and storage of cameras and film in the tropics is of the greatest importance. 35mm roll film, kodachrome or black and white, and 8mm or 16mm kodachrome, is packaged moisture tight for tropical use. As each roll is exposed, it will be returned to its original container and retaped. Pressure caps on 35mm cans do not require taping. As an extra precaution when working under tropical conditions, I have used sections of auto inner tubes for storage of cameras, film, and binoculars. The tube is cut to a desired length and vulcanized at one end. After dropping in the articles for storage, the tube is rolled from the open end and held there with rubber bands cut from the same tube. The thin waterproof bags supplied the armed forces for storage of pistols and personal effects serve the same purpose and they are light. Thus protected, equipment can be placed close to the ground—the coolest place—without fear of moisture.

Exposing the interior of cameras to direct sunshine helps keep them moisture free. This can be done when the camera is empty for reloading. Exposure to the sun should be a matter of seconds only with the camera in your hands. Don't put the camera down and forget about it. A lens cap keeps the sunshine from entering the lens, or better still, remove the lens and sun the box alone.

Care of Equipment

The care of photographic equipment in the field and out requires much more attention than guns and tackle. Unlike guns and fishing reels which can be taken apart for cleaning, cameras are complicated; so much so that only expert mechanics have the know-how of major repair, oiling, and adjusting. Perhaps this is why they are so badly neglected.

Outside of natural wear and tear, cameras can be kept in good running order by keeping them free of dust and moisture. If allowed to accumulate, dust and moisture, especially salt water spray, it will damage any camera. A soft camel's hair brush and a package of lens cleaning tissue are used for cleaning in the field, at the end of the day, and before storing. I also carry a small rubber ear syringe. This is used to suck or blow accumulated dust from the inside of cameras every time they are open for reloading. Inspect the film gate of all movie cameras before loading because a piece of grit once lodged there will scratch the film from end to end. A toothpick or match whittled to a chisel edge removes these specks without damage to the highly polished surface. When using a magazine loading camera inspect the gate of the magazine as well—a piece of dirt lodged between the camera gate and the magazine will throw the picture out of focus.

Lens cleaning demands two steps: brush off dust particles first, then clean with lens tissue. The lenses of cameras, rifle scopes, and binoculars are now coated with a thin layer of magnesium fluoride. This improves lens efficiency by reducing the amount of light reflected from the lens surfaces. The coating is very thin—about four millionths of an inch —and should be cleaned with great care. A coated lens can be recognized by the blue or purplish appearance which the coating gives it.

Lens caps, rubber or metal, keep the dust, rain, and spray off lenses. They assure you of a clean lens when you are ready to shoot.

All camera manufacturers recommend factory checking of their products every two years or so depending upon usage. If your camera is in good condition the check-up will cost little; and when serious adjustments are necessary, you will save yourself disappointment and the loss of film.

The Red Handkerchief

This is perhaps the first time that such an intimate subject has been classified as a camera accessory. After you have tramped as many miles as I have in search of the camera you so casually put down in order to explore a likely looking piece of trout water, you'll see red too. As a marker, a red handkerchief has no equal—hang it on a stick or anchor it on the top of a rock and you'll save yourself both steps and temper. Carry more than one—they'll work on spare fishing rods, lunch baskets, and as trail markers; anoint the edges of one with your favorite "Shoo-fly," put it under your hat, and life in the presence of winged·bloodsuckers will be swatlessly pleasant.

Chapter 3

EXPLORING THE WORLD OF COLOR

According to the U.S. public health service, 9% of men and 2% of women have trouble discriminating between the more subtle hues of the visible spectrum. Of these, 4% of men and ½% of the ladies are color blind to one or more colors in all their tints and shades. The average trained eye is able to pick out 160 distinct hues in the spectrum; by other means, and quite recently, the spectrum has been divided into 4000 distinct wave lengths.

Obviously, anybody interested in serious color photography should make sure he is not in the 4% or ½% class. Tests for color deficiency in vision are made with a series of plates—devised by Dr. Ishihara or adaptations of them—which are in constant use by industries requiring good color vision: aviation companies, decorators, color printers, drapery salesmen, tailors, radio mechanics (wire colors), and a host of others. An ink manufacturer of my acquaintance has a small room adjoining his office. In this room all prospective customers and employees are tested for color vision before the conference begins.

Color Mood Era

There are some scientists who regard color vision as a comparatively recent development because there are few references to color in the bible and in the writings of Homer. Legend has it that Homer was blind; and any student of civilization and art is fully aware of the wide application of color before the dawn of written history. Indeed, the earliest paintings made by man (Cro-Magnon) were rendered by aid of some color.

Within the past 25 years however, we have grown up in the application of color to everything from baits and flies to pots and pans, and most important, the roll of color film within our cameras.

The best practical color process, but by no means the first, for the photographer, was introduced by Eastman in 1935, kodachrome. Since then this film has been improved in speed, stability, and color recording; and it has been broadened to several types including kodacolor roll film. Another color film, Ansco, has also been highly perfected. The somewhat softer color rendering produced by this film is preferred by many serious workers.

Because many of us do not train our eyes to see color except in a broad way, we are inclined to be brief in words describing it. We say, "Green woods," when as a matter of fact the woods contained many tints and shades of green. Color film sees and records colors not seen by the casual eye; it is sometimes difficult to believe that they really existed as they show themselves on a screen. On this point, the trained observer is likely to be less critical than the one who passes along snap judgments.

With a little practice on color observation along field and stream, you will be amazed to find that by changing camera angle, you have also changed the color of things. The water in a lake appears blue from one viewpoint, grey from another, because it reflects the color of the sky you are facing. For example, when you look north (south below the equator) over a lake or stream, the water reflects the deep blue of the northern sky. From a viewpoint west or east, the sky is less blue and so is the water. Reflected clouds will make water appear grey; and on overcast days, all water reflects grey regardless of viewpoint. Familiarity with the behavior of color over water means that you will stalk the angler in the stream and the canoe on the lake for the camera angle from which you see color at its best.

Changing camera angle on any subject may improve a color picture. Explore the various angles before you shoot. A close-up of a speckled trout is a thing of beauty when the fish is fresh from the water and the light source is just right. But it can also be a faded out looking affair if sun glare conceals the delicacy of the color pattern. Iridescent colors (non-pigmented such as the colors reflected from a thin layer of oil on water) are common in Nature: mother of pearl, certain plumage on humming birds, wood duck and other waterfowl. The angle at which these colors are seen best is comparatively small and therefore takes careful camera positioning.

In black and white photography everything is rendered in values of grey, white and black; detail in the shadows is simply detail. With color film, shadow renderings combine color with detail. Because of the present comparatively short latitude of color film, exposure for two hunters on the trail—one in shadow, the other in sunshine—requires two camera settings: one for the lad in shadow and one for the fellow in sunshine. Even with Hollywood lighting systems and make-up paints, flesh values vary in a single scene. The point is this: make a color still of the hunters both in shade or sunshine. For a motion picture scene of hunters moving along a trail from shadow to sunshine, expose for the sunshine. This will mean darkening of the shadows which is more pleasing than having the sunshine part of the scene over exposed. The range from deep shadows in the woods to brilliantly lighted subjects is too great for color film and there is no straddle exposure.

One of the most difficult scenes to handle is from a boat with an angler casting to a wooded shoreline. On this scene, assuming the sun behind you, you will have three meter readings: 1) From the shoreline out where you see the forest reflected in the water. 2) On the lake beyond the woods' shadow. 3) Looking down on the fish as it is brought to net. If you start a motion picture camera going on a strike near shore (exposure #1), keep it going through the play away from shore (exposure #2), and up to the netting (exposure #3), one or more parts of the scene are bound to be incorrectly exposed. If the angler "horses" his fish to boat, about the best a fellow can do is film a netting scene. When a fish is played the sporting way and allowed to run and jump, there is time for change of lens settings. This means a break in action but exposures are correct. The ideal fishing scene is one of continuous action from strike to netting and it can be made from a second boat. Light and shadow conditions must be just right for a single camera setting. Photographing from a second boat eliminates exposure problem #3—looking straight down on the netting of the fish.

Reflected Colors

The colors of objects outdoors, and indoors too, are often distorted by adjacent colors. A flesh tint will take on a real blush when the subject stands close to a red brick wall; or a green blush if surrounded by green foliage. The brighter the sunshine, the greater the reflected color. This is another instance where the observation of color as it exists, will avoid mistakes.

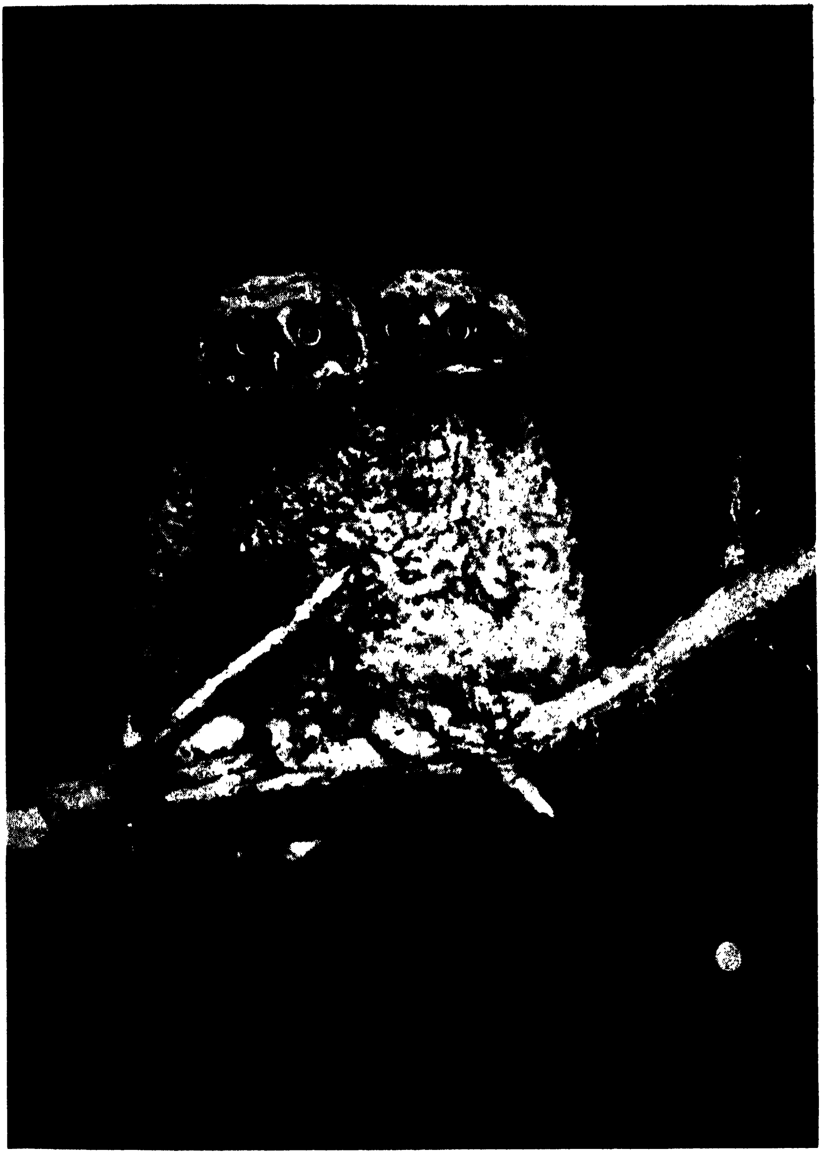
Sunrise—Sunset

All game is known to be active during morning and evening, yet color film instructions say that these are not the best hours for its use. If you take such instructions literally, you will miss good action, including the beginning and the end of a day's sport.

The reason for these instructions is the preponderance of red and orange from the light of the sun. As the sun goes down or comes up, its light passes through the atmospheric envelope (14 miles or more in thickness) at a low angle from our point of view, and many times the actual depth of this envelope. In doing this, the shorter wave lengths (blue, violet) are scattered, and the longer wave lengths (orange, red) pass through. Thus the predominant colors of orange and red paint the landscape accordingly.

In many respects, and if not overdone, scenes photographed during the early-late hours, have more eye appeal than those made at any other time of day. In a short motion picture, be certain about confining such scenes to the start or the end of a reel. A picture covering an extensive hunt, can include one or more scenes associated with the end of a day's journey on the trail. Many of my favorite scenes were made at sunrise and sunset and they were not sunset skies either. One, of a flock of lesser snow geese on the wing, was made during sunrise on a Texas ranch. The rising sun behind me gold plated their white plumage. The showing of this scene suggests the early start of a day with the "wavies," as these geese are often called. On the lonely Bird Rock, Magdalen Islands, I photographed a gannet colony (large white sea birds of our north Atlantic) on their nests at sundown, ending "Gannet Day on the Rock" with dramatic lighting.

One of the oddities about color impressions which we accept without thought, is our habit of naming a color, regardless of the kind of light under which we see it. If the little woman's hat *is* red, we will continue to call it red at sundown or under artificial light, when we should be calling it orange. Our memory alone tells us it is red, and so we name



Labrador Horned Owls. Frost was in the air the night these owls cuddled for warmth. The white spot below the pine branch is the full moon. Reproduced from 35mm kodachrome type A; No. 50 bulb; open shutter; 135mm lens at *f*/6.3.

it. On the other hand, when viewing a sundown color photograph of the same hat, we name it as we see it—orange.

Daylight type color film is "balanced" to give the best color rendering of subjects when they are illuminated by bright sunshine on a clear day. Such lighting exists at noon, but with the sun overhead shadows are harsh and deep, throwing unattractive shadows under the eyes, nose, and chin of an actor. Good light, and much softer shadows are present during the morning and afternoon. These are the hours for the filming of the main action in a picture.

Fish Eye View

The color world of fishes varies with the depth at which they swim. Beebe, and others using remote controlled cameras, have established the fact that total darkness (in clear water) reigns at about 1700 feet below the surface. While this is not of special interest to sportsmen, the way light is absorbed in passing through water has quite a bearing on baits and their colors, and underwater photography.

It so happens that upon entering water the spectrum is pared at both ends: the longest wave length of the spectrum, red, is the first to disappear—90% of it is absorbed at a depth of only 17 feet. Beyond that depth, little remains of the spectrum as we know it except a narrow band of green. This then is the color world of the lake trout and landlocked salmon during the warm summer months when they seek the cool waters far below the surface.

Recently I viewed some extraordinary underwater pictures which clearly showed the behavior of light at varying depths. At depths between 10 and 15 feet, the bottom of the ocean with its coral formations and tropical fishes was recorded in the orange-yellow-green part of the spectrum. This is not surprising when one knows that at that depth, red is approaching extinction by absorption or scattering in the water.

The technique of underwater photography is similar to that of the "goggle" fisherman except the swimmer carries a camera instead of a spear. The first problem involved is the building of a waterproof container for the camera. One of the most practical methods is the use of a basketball inner tube or bladder. Into one end of the rubber, a round glass (optically flat) window is cemented; the other end slit open to receive the camera. When the camera is placed in the bag, the lens sunshade is brought up tight against the window—the opening slit is then folded and made waterproof by clamps. In the folding operation the camera lens is held in position against the window.

A small bag or tin of silica gel (moisture absorbent) placed in the rubber bag with the camera will absorb some of the moisture which is bound to occur. The less air surrounding the camera in the bag the better—it will not have a tendency to float and can be handled underwater with greater ease. The shutter release can be operated by pressure from outside the rubber bag.

In operating a hand held movie camera while swimming, the scenes are liable to be too short, but they can be extended by the use of slow motion speeds. At 32 f.p.s., a scene is doubled in length when projected at 16 f.p.s.

The method suggests a number of interesting uses: photographing dry or wet flies from beneath the water; spawning beds with fish over them; underwater scenes of fish being brought to net; stream bottoms and insect life of interest to fish and fishermen. Many of these scenes could be made by holding a camera at arm's length beneath the surface of the water.

As for exposures, they can be checked by putting the meter in the bag and holding the bag at the point from which the picture is to be made. The "memory button" of the G.E. meter is ideal for this purpose because the correct light reading can be read *after* the meter is removed from the bag.

Chasing Rainbows

Those who have photographed rainbows only to find the colors washed out, probably took a meter reading of the sky and set their cameras accordingly. Perfect rainbow pictures are made by using one aperture smaller than the meter reads —if it says *f*/4.5, use *f*/6.3.

Chapter 4

THROUGH THE VIEW FINDER

Parallax

The picture seen through the view finder of any camera, is never the exact image of the picture recorded within it, unless viewing is done on ground glass and *through the lens.* The reason for this is obvious: a view finder, no matter how close it is to the lens, sees one picture—the lens, from a different position, records another. The difference between these two viewpoints is known as parallax.

A simple demonstration of parallax is to hold this book at arm's length, viewing it first with one eye and then the other. Note how the book changes position with relation to the background of the room.

Fortunately, at camera-to-object distances beyond 15 to 20 feet, this difference is negligible. Within these ranges, parallax adjustment is made by tilting the view finder, or framing the picture to marks within the view finder which designate corrections for various ranges.

The problem of parallax is accented when using telephoto lenses, especially for close-up work. All good cameras have view finders designed for parallax adjustment—some are equipped with ground glass for critical focusing directly through the lens of the camera.

Field of View

Lenses can be divided into three general groups: wide-angle, normal or standard, and telephoto. Since the field or picture area varies for each group, the view finder must be built to see the same field as the lens in use; otherwise, composing the picture is mere guesswork. All still and movie cameras are made with a view finder for use with a normal lens—a few have view finders for a selection of lenses from wide-angle to telephoto.

If your camera lacks the correct view finder for a lens you intend using, have one put on before attempting any pictures. In the event you find yourself out in the sticks with a telephoto lens and no matching view finder, you can still get your game shots by centering the deer or whatever it is on the standard view finder. The actual field of view can also be approximated through the standard view finder as follows: 2X, 3X, or 6X lenses cover 1/2, 1/3, and 1/6 of the standard field (dimensional not area). If you have a 2X lens on, imagine you are looking through a small rectangle whose horizontal and vertical dimensions are 1/2 of what you see.

For extreme close-up work on small objects, supplementary lenses, portrait lenses, extension tubes (tubes inserted between lens and camera), or cameras equipped with double-extension bellows are used. In every case, ground glass focusing *through the lens* determines the field of view. Titling equipment for home made movie titles, does the close-up job by mechanical means: distance from title board to camera for sharp focus and field of view, are all set up by the manufacturer of the equipment. All you have to do is set up your camera with a supplementary lens, illuminate the title, and shoot.

Rehearsals

Directed scenes occur in almost every motion picture and in many stills. Since they are subject to direction, they are also subject to rehearsals, and careful framing. Framing all

Salmon Fisherman, Serpentine River, New Brunswick. The bend in the stream and receding spruces give depth to this scene—a K2 filter accented the clouds.

the subject is the important detail to watch. A close-up of an angler opening his bait box, selecting a bait, and tying it on his line or leader, is a simple scene to make. But in lifting the bait from his box, the angler never knows until you tell him, how far he can move his hands without taking them out of the picture frame. Rehearsing such scenes through the view finder, corrects the errors.

Repeating the "don't look at the camera" rule, is for the good of most pictures. On movies, watch the language during the take—there are lip readers in many audiences.

How Long the Scene?

There is always a reason for the taking of a scene. The purpose may be to point out a number of interesting details, a cycle of action, or a quick look at something of importance. Therefore, the nature of the scene determines its length.

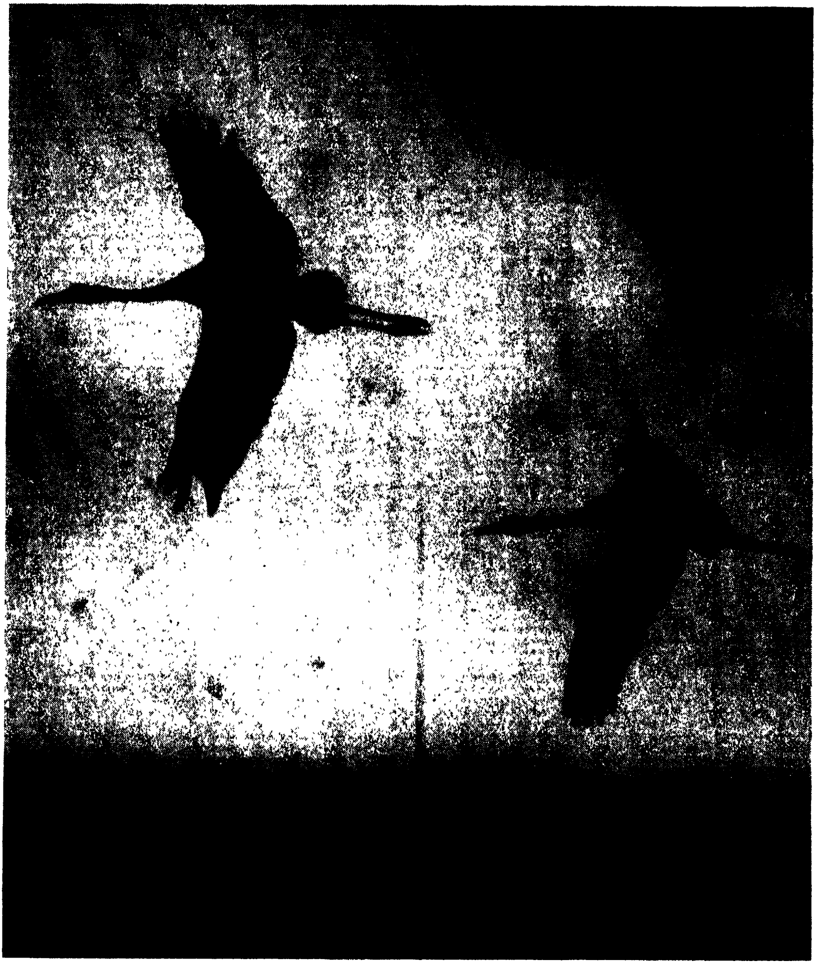
I use a simple yardstick which begins with two questions: what is there about the scene that requires description? How long will it take me to say these things? Having determined the answers, I mentally run through the comments while the scene is being filmed. The scene thus obtained is timed correctly—it runs on the screen long enough to serve its purpose, and I'm not likely to get caught in the middle of a sentence with a change of scenes.

An action cycle usually times itself. If it is in the nature of a demonstration—rod grip, fly or bait casting, gun handling—timing is automatic. The use of slow motion speeds for extending extremely fast action, is described in Chapter 9.

Signs of any kind are like titles—spectators must be able to read them through. A good rule is to read them *twice* while the scene is in the making.

Panoramic Views

Moving a camera while it's running, to include more of the landscape or an object, is a study in slow motion—the slower the movement of the camera, the better defined the



Whooping Cranes, Louisiana. A low horizon accents the sky and what it contains—in this instance the flight pattern of two of the rarest birds on the North American continent. Dull day, fast pan film, 135mm lens at *f*/6.3.

scene. If the camera moves through an angle of say 90 degrees, 20 to 25 seconds swing time is about right. Counting seconds without a watch is an easy matter when you know the old photographic formula: saying the words, "one hundred and one," takes one second.

Before making a panoramic view, run the camera over the scene once or twice; this will establish your starting and finishing points. If there is movement within the scene—waves on a lake, current in a stream, running dogs—move the camera *with* the direction of the motion. On moving objects, action is best defined when the swing of the camera equals or is slightly less than the speed of the object being photographed. Don't ever panoram faster than the objects followed—that will make them appear to be going backwards.

There are times when a quick shift from one object to another will accent the over-all action. On a quail hunt I was following a pointer through a fairly open piece of cover when he went on point, and held it, although looking ahead I could see several quail running away from the dog. Since both quail and pointer could not be included in a single scene, I first photographed the quail, then, without stopping the camera, made a quick shift to the pointer. On another occasion an angler was casting to a rise. The camera was going on the dry fly when it landed on the water, caught the rise, the strike, and a series of surface flurries. The quick shift was made to the angler whose 3 oz. rod was bent to the limit on a large rainbow.

When swinging the camera from one point to another, light throughout the entire scene must be uniform. A swing from a light object to a dark one, or from bright sunshine to shadow, is not within the limitations of present color film—one part of the picture is bound to be incorrectly exposed.

Quail Shooting. This high horizon picture stresses foreground. The soft light of late afternoon is favored by many pictorial photographers.

Composition

Composition within a still picture can be planned to fit a variety of shapes—it can be a horizontal or vertical rectangle; and it is subject to cropping or trimming for improvement. The movie frame is always in the proportion of 3 x 4. That's handicap number one for the movie maker, but while composition within this fixed frame leaves much to be desired, it can be controlled. The second handicap, motion, produces 16 different pictures every second. Thus a well planned starting frame can be upset in less than a second unless the viewpoint is selected with great care.

Supposing the scene is of hunters returning with their trophy in a canoe. This scene, like many others, is subject to some motion direction and good composition. From which direction will the canoe come into the picture? Where will the hunters land? Which way will they go on foot? Plotting such action in advance, and planning picture space for the movements, control every frame exposed. Although the eye follows motion, the background needs equal attention. Pick a spot for its scenic beauty so that when the canoe is in the distance, the entire picture speaks for itself.

On the other side of the stalk for better pictures, there are the unpredictable scenes. Who knows where and when an Atlantic salmon, a muskellunge, a bull moose, will respond to the lure of feathers, plug, or the birch bark horn? And what will they do when you have them at line's end or in the open? How plan this kind of action? The answer is sometimes luck, but it can be good judgment based on a knowledge of the game and having the camera at ready.

If a bull moose means business, he'll come straight to the caller, talking as he approaches, but not always. At any rate, the point of his first appearance is usually apparent, giving the camera handler time to get in position to include caller and moose in his picture.

Game fish follow a general fighting pattern after they're hooked—they all run if they have a chance, some of them jump. The camera angle can usually be planned for the species of fish being taken.

1)—Offshore on heavy game fish like tuna, we know that the fishing boat will start following the fish immediately after it is hooked. There will follow hours of play during which the boat will assume about every possible position with respect to the sun. Photograph the angler in his fighting chair (assuming you are in the same boat) when the light is right. At the boating of a tuna it is sometimes, but not always, possible to have the skipper maneuver the boat for favorable light.

2)—Offshore on striped bass is another pattern, and a pattern typical of lake fishing for muskellunge, landlocked salmon, small- and largemouth bass, or lake trout. All these game fishes will be hooked, played, and boated from one boat position—with allowances for wind or tide drift. The second or camera boat plans its angle for light and holds it.

3)—Stream fishing for brook, rainbow, or brown trout calls for angles by leg work, usually in waders. Light on a winding stream varies by the minute and at every bend. There will be a choice run or pool where the light will be perfect at morning, evening or some other time. On account of light variance, picture times along any stream have to be planned in advance regardless of fishing tables.

4)—Picture angling for Atlantic salmon presents other problems: on the larger rivers and streams fishing is frequently done from canoes while smaller waters are waded. In either case, the swift, long rushes of these gamsters take line, and fast. They have been played from canoe and on foot up to two miles along a stream, jumping as they go. What angle here? If you can run like a deer along the bank, there is a chance that you can outdistance both angler and salmon, get the jumps, and the stumbling angler at his fishin' best—if the light is right. When the salmon action is confined to a pool, the angle problem is similar to that of stream fishing for smaller game fishes. The play will be longer of course—more time to select good angles; the jumps at comparatively longer ranges—telephoto shots; and the angler will be forced to do some foot work in the netting, gaffing, or tailing of his prize. Push your canoe ahead of an angler on salmon? Never. You have to take your chances in the rear.

Rules about composition are as plentiful as trout flies, with new patterns ever in the making. And, like trout flies, a few of the fundamentals of composition are always standby. The following suggestions are given only for use as general guides:

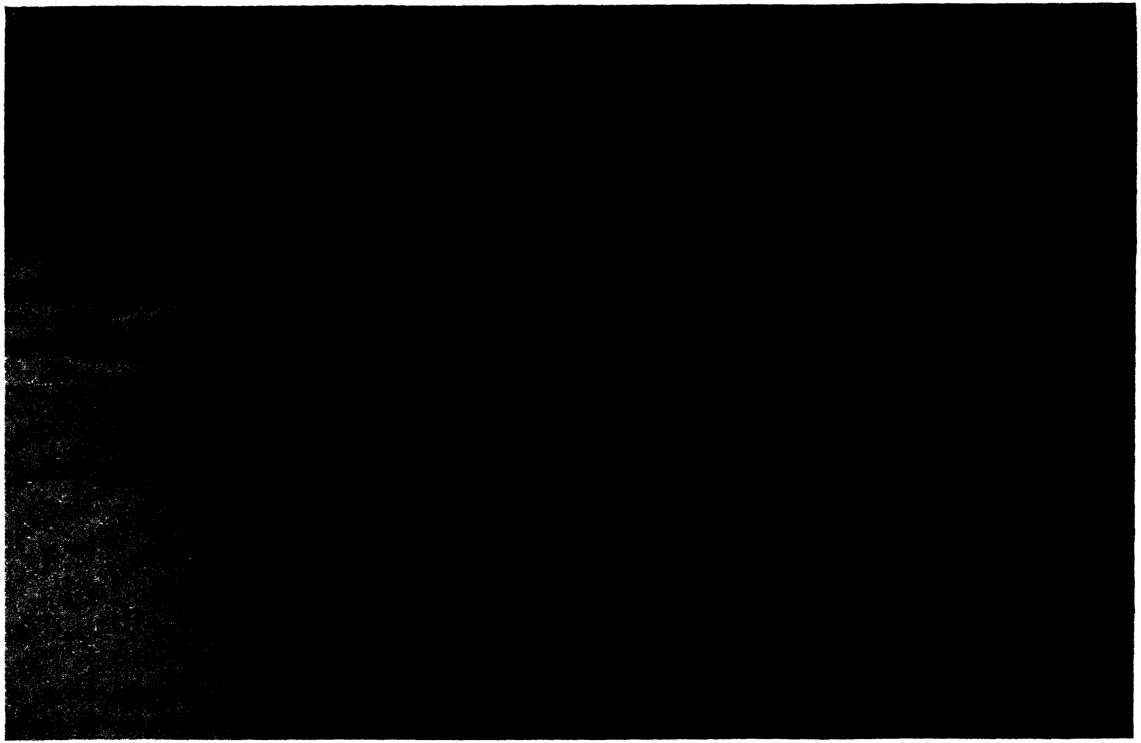
1) A picture is weak when the horizon line divides it into two equal parts. Placement of the horizon line above or below the horizontal dividing line improves the picture. A high horizon accents foreground and perspective; a low horizon accents sky and what may be in it—clouds, waterfowl on the wing.

2) Two of the strongest points of interest in a picture lie along the diagonals drawn from the center of the picture to the upper left or right hand corners. Examine a number of outstanding photographs or paintings and note how often your eye will be attracted to these areas in the pictures.

3) Action must be related to the rest of the picture. Planning of the canoe scene already described, is an example of combining action and background composition.

4) Framing with trees, overhanging branches, or through openings, produces a feeling of depth of space.

5) Watch the background distractions such as telephone poles or unsightly objects. Look for sticks or other things that appear to grow from a hunter's head.



Canada Geese and Mallards, Sandusky Marshes, Ohio. A silhouette action shot against early morning light. 135mm lens at *f*/6.3; fast pan film; 1/500 sec.

6) Fill the view finder with your subjects—motion pictures can't be trimmed for improvement.

7) A noted architect inscribed these words on the walls of his boyhood studio, "Art pre-exists in Nature, and Nature is reproduced in Art." Interpret the outdoors scene as you see it—translate Nature to art your way and you will have achieved a personal style—the most important of all rules in the graphic arts.

Chapter 5

GETTING CLOSE TO NATURE

The sportsman in the field is an easy camera mark compared with the making of scenes of the game itself. There is the matter of range. Scope equipped rifles and high velocity loads for scatter guns will take game far beyond acceptable camera ranges. The stalk, or how to close the shot and bullet ranges is the problem. From the point where the gunner stops, the cameraman must go on, equipped with a knowledge of the game, the tricks in stalking, and a limit bag of patience.

Outdoors in Reverse

In business and politics, a knowledge of the other fellow's viewpoint is the foundation upon which rebuttals are built well in advance of a forthcoming debate. While a great deal has been written about the stalking of game, the viewpoint of the game itself has had comparatively little attention. We can expect amazing revelations as researchers continue in the field of vision, hearing, and smell—the principal senses by which birds and animals are made aware of their surroundings. We know too little about these things at present, but what there is of it is certainly worth remembering at the beginning of any stalk.

Vision

Centuries ago the falconer acknowledged the superiority of bird vision when he carried a shrike as an assistant beside him in the saddle. The hunter knew that his falcon was in view, but not by him, as long as his assistant was excited.

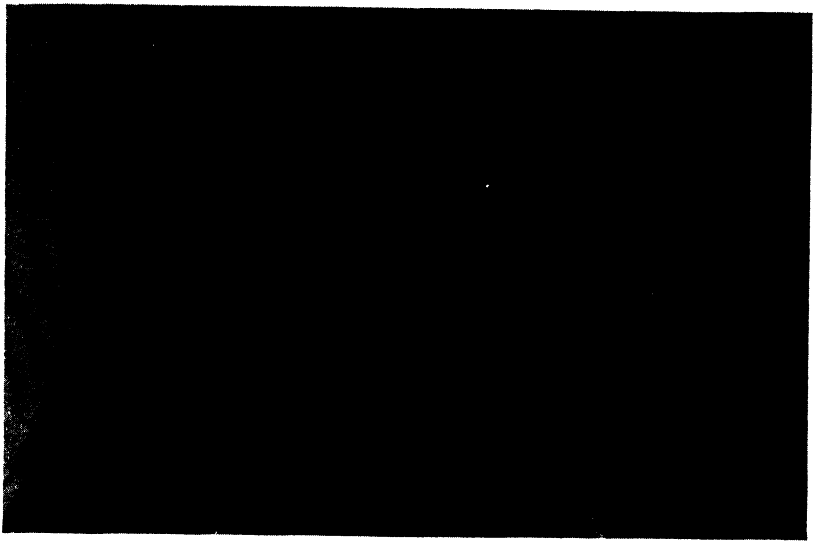
Many times I've stood beneath a tree from which a tiny least flycatcher was darting for its game on the wing. I had the advantage of watching the bird on its way, could hear the snap of its bill as it closed on its game, but I couldn't see the insects—they were "no-see-ums" to me but not to the flycatcher. On another occasion I was sitting in front of my camp at noon when a Labrador horned owl scaled out of a pine woods 150 yards from where I was sitting. The owl, on set wings, came straight to a spot in the uncut hayfield where my auto tires had left beaten trails. When I stood up to see what was going on, the owl left for the pine woods with a large snake dangling in its talons. The episode convinced me that this owl cannot only see in the daytime, but he sees extremely well.

As further proof of the remarkable resolving power of birds' eyes, watch the plungers—gannets, osprey, tern, or kingfishers—as they hover, dive, and spear a neutral colored fish against a neutral colored background.

It was not until I was on a collecting trip and skinned out my first bird specimen that I realized the colossal size of the eyes of birds because only a small portion of the eye shows through the lid opening. Their eyes occupy so much space in the head that in some cases they actually roll together in the mid-plane of the skull. According to Walls, the largest land-vertebrate eye is that of the ostrich (50mm). Hawks and owls a fraction of the size of man have eyeballs as large as ours, and larger.

What are the odds against us? Scientists tell us that the common English sparrow can out-spot us two to one. Some of the hawks and eagles, eight to one or better. And researchers have barely scratched the surface.

If you're convinced now that the bird's eye view is a pretty



Cooper's Hawk (juvenile). The eyes of birds can out spot us eight to one or better.

Gannet on Nest, Bird Rock, Magdalen Islands, P.Q. They take their fish the sporting way—beneath the surface—have been caught in fishing nets 75 feet or more beneath the surface. Eye positioning gives them full frontal view for following their game.

sharp one, the next thing to know is that they can also see color—as well if not better than man. There is some doubt about color vision in the nocturnal birds, but none whatever about the others.

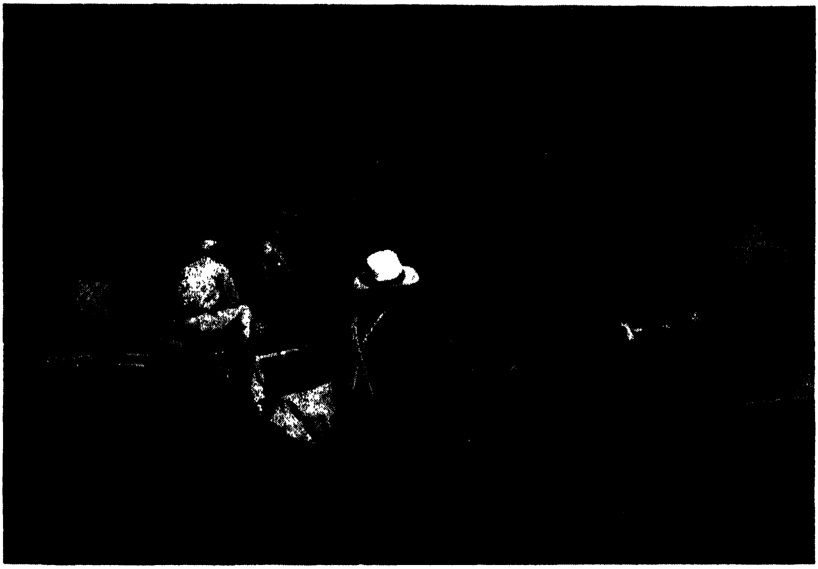
For some time it was thought that owls and other night prowlers had vision within the infra-red region of the spectrum and could spot a cottontail by seeing the heat radiation provided by its warm body. So far, tests on this theory are not too convincing, but then again, the functions of many details contained in bird's eyes are not understood. Photographs have been made in the dark by the infra-red rays coming from such objects as a human hand or a hot but black flatiron.

The stalking lessons to be gathered here are obvious: birds can see us much better than we can see them; possession of color vision means that birds can discriminate hues in the clothes we are wearing. If the critters were color blind, all would be grey—a red shirt against a green background would be in camouflage, so to speak. When fighting a race which had color vision equal to our own, we dressed our fighters in "jungle suits." In the same way color vision in game demands strict attention to clothing colors—match the background is the rule.

Color vision in animals we're told, is not as widespread as it is in birds, fishes, and reptiles. A partial explanation of this is the fact that color does not exist in the dark. Therefore the animals, most of whom are night prowlers, would have little use for hue discrimination. Then again, and the subject begins to get complicated, color vision is lacking in many of the diurnal animals. The red flag to the bull for example, is known to be showmanship—waving a flag of any color would excite an infuriated bull.

Unfortunately few of the animals of special interest to the sportsman have had serious study. Putting horses,

Two Point Landing. Air brakes—cupped wings, large webbed feet and spread tail feathers—reduce landing speed.



Wilderness Buck, Campbell River, New Brunswick. Salmon fishing party watches while guide feeds bread to trusting buck.

moose, deer, or bear through the paces necessary to establish plus or minus to color vision, is not a popular game with scientists. But they have given us a mass of information some of which is summarized as follows:

Dogs: More conscious to form than to color. If they see any color at all it is dim and vague.
Cats: Color blind.
Raccoon: Said to be in the same class as the dog.
Rodents: Rats, mice, squirrels, rabbits—controversial with a great deal of conflicting evidence. Probably color blind. Porcupine—color blind.
Primate Order: Chimpanzee, rhesus monkey, spider monkey—color vision as good as ours.

It may be rash to state—at any rate out loud yet—that many of our game animals are color blind, but evidence in hand does point that way. As to their visual acuity, Colonel Roosevelt had this to say about the pronghorned antelope: "Its sole aim is to be able to see its enemies, and it cares nothing whatever about its enemies seeing it." The antelope's power of sight is rated well above that of the deer and moose. Such game as antelope, sheep, and goats have the wide open spaces before them and may well be expected to have keen vision; while the skulkers of the forest, protecting themselves by other means, probably don't see or don't have to see as well.

The one thing that all game sees is movement, especially fast movement. A hunter turning his head or moving a hand, tells the game exactly where he is. When working up wind and out of sight I frequently called my springer in while I was standing with my body frozen against the trunk of a tree. As long as my scent was not carried to him, he usually failed to see me unless I flicked a hand—a movement he immediately perceived.

Smell

This is the principal sense upon which the skulkers of the forest depend for their safety, food, and communication with each other—incidentally it's their downfall, too, when the trapper goes to work on them with his "secret" scents.

The eye-and-color-consciousness of birds is their protective device. It is generally conceded by investigators that the sense of smell organs of birds are so poorly developed that the poor birds can't put them to any practical use. Thus the old claim that ducks can smell gunpowder isn't worth the powder to blow it.

One reasonable assumption is that there are wide differences in the sense of smell between animals of one species just as there is in bird dogs of one breed; and there is likely a wider difference between the species. The fact remains that they are all excellent detectors of B.O., and at amazing distances. On a deer stalk one guide cautioned me, "Even I can smell that fly dope you're wearing—pitch the bottle in the river or the deer'll all leave the country." Such aged-in-the-woods advice is always worth following.

Hearing

The use of "silent" dog whistles—pitched too high for human ears but heard by dogs—is mute evidence of another unknown quantity in Nature: a sense of hearing in animals and birds beyond our dialing. We can only hear fragments of the language of the outdoors. What the birds and animals have to say to each other in "silence" has intrigued more than one naturalist. It's a fascinating study, replete with tales of animals enjoying a silent *tête-à-tête* or bossing their youngsters around without screaming at them.

In addition to this language which we call silent for want of a better word, the game hears other sounds extremely well: the snap of a small twig, or the scuff of a rubber soled shoe on a rock, must sound like pistol shots to them judging by the way they get going. In camp at night my springer was forever pricking up his ears to sounds that never reached me.

The Stalk

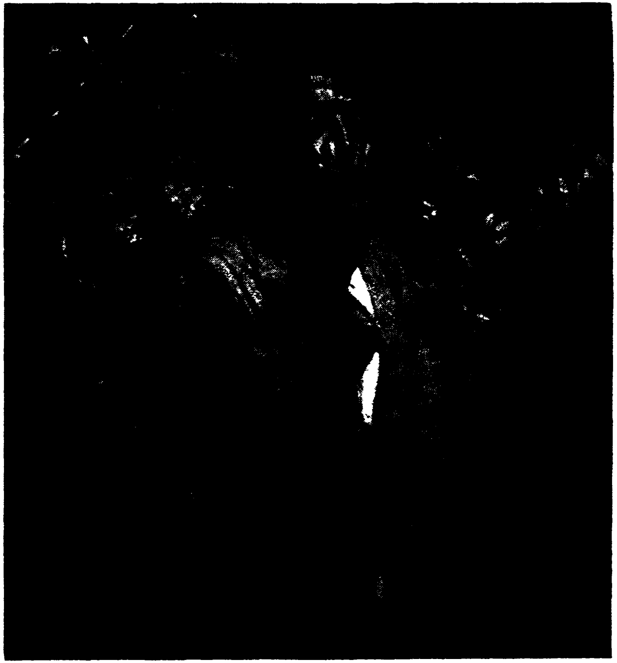
Now that we've taken inventory of how the other fellow's senses stack up against ours, we can go after him the right way.

In his book, MANEATERS OF THE KUMAON, Corbett gave us an excellent example of how to go about the business of stalking man-eating tigers. Corbett had very good reason to assume that while he was stalking the tiger, the tiger in turn would be stalking him; but he further reasoned that the tiger was not aware of the fact that man does not hunt by scent. Corbett therefore did his stalking in reverse of the usual method: he travelled *down* wind. This maneuver put the man-eaters where he expected to find them: lying in wait in front of him. By protecting himself from rear attack, the hunter was thus able to concentrate on what was before him.

Stalking Rules

1) Take advantage of all the information you have about the game being stalked.
2) Go up wind to animals so they can't catch your scent.
3) Up wind or down on birds—their sense of smell doesn't count.
4) If you must move while you're watching game, do so in slow motion.
5) Watch the sticks and stones at every footstep—the moccasined foot of the Indian made little sound.
6) Move forward when game is temporarily out of sight or feeding with head down.

Cliff Dwellers, Kittiwakes and Atlantic Murres. Remaining quiet was the substitute for a blind on the ledge.



Calling all Antelope, Cameroun, West Africa. Bulu guide demonstrates his art: a prolonged nasal "eeh—h—h" ending in a grunt and followed by sharp belly slaps with the left hand in imitation of stomping hoofs.

7) In the open where there is no cover to hide you, use the Indian's "beeline" approach—this eliminates side motion.
8) Go slow—it may take hours to cover a hundred yards —game is always on the alert.
9) Freeze if the game is coming your way—let it do the footwork for you.
10) Wear clothing that matches the surroundings. *Caution:* red caps for safety during the hunting season. If deer are color blind they'll not see color anyhow, but some hunters are color blind too, so watch your step.
11) Avoid wearing anything white unless you're stalking in snow—then go all white.
12) Crawl if necessary to keep your body from being silhouetted against the sky—body against sky movement is the easiest of all to see.
13) Read the signs of game around you—fresh tracks and droppings tell you when you're close.
14) Going quiet also means using your ears—they're always good game detectors.
15) When the wind is favorable, work with the sun behind you.

Calls, Squeaks, and Decoys

Bringing the game to you is the fine art of woodcraft. If I were to put down all the tricks and sounds I've heard about, and seen in practice, this book would not hold them all.

There are mechanical duck calls, goose calls, crow calls, and hawk calls with which the users imitate the language of these birds. A New Mexico Indian I once met could imitate about everything from a chicadee to a dog fight without aid of any mechanical device. In this respect the Indians were truly superb in their knowledge of the language of the outdoors, and demonstrated it by using bird and animal calls as tribe identification signals. These calls were so well imitated that they sounded like the real thing to hostile tribesmen.

There is the moose hunter and his birch bark horn with which he imitates the call of the cow moose with a long-drawn-out, "eh-eh-h-h-o-o-o." That call brings the bull moose when he's in his fall amorous mood. At that time of year he'll come-take-a-look at a fellow chopping wood—thinks perhaps it's two bulls battling over a cow; so he hurries along to take advantage of their pre-occupation. With this same bit of animal behavior in mind, the Indians of northern Manitoba rattle antlers together—the sound brings caribou to the hunters.

The antelope is both keen eyed and curious. Hunters have brought them within rifle range by simply waving a handkerchief above the bushes.

Drumming one's fingers on the side of a canoe attracts the beaver; hunters in Louisiana can "grunt" an alligator out of its den; another hunter plays a mouth organ to bring a woodchuck up for a shot; and blowing a blade of grass between thumbs attracts deer—the call resembles the sound made by a fawn.

And so the calls, grunts, and rattlings go on until they put the Pied Piper of Hamelin to shame. But what works for the hunter, works equally well for the photographer.

One of the most effective calls I've ever used was taught me by an ornithologist. The closest description I can give of the "squeak" is that it resembles the death cry of a rabbit: high pitched and shrill. With it I've called up foxes and woodchuck; brought squirrels down from the tops of trees; decoyed dogs and cats on the run; and on birds it works like a charm. Hawks, owls, and jays; thrushes, warblers, and a host of others all scurry out of their hiding places to see who is being murdered. Once a few of them gather around, they start their own alarm notes and in short order one can make an inventory of the bird life of the vicinity without taking a step. The secret is to keep well concealed, repeating the call from time to time.

The squeak is produced by puckering the lips between thumb and forefinger with hand cupped megaphone-like. Sucking air through the lips produces the sound—changing finger pressure varies the pitch. A few minutes practice and the trick's yours.

Decoy designs are just as numerous as calling methods. The use of live decoys for shooting purposes is now prohibited by Federal law as a conservation measure, but the tin, cork, wood, or papier-mâché imitations do quite well for gun or camera. The Indians of James Bay use a combination of mud, sticks, and feathers which they fashion on the spot. The mud part is patted into the general shape of the body of a goose or duck; a few feathers stuck in one end gives it a tail; and a stick in the other end goes for a neck.

Down east "tollers" (dogs) are used for decoying ducks. These dogs are trained to play around on a beach when the ducks are out of range. The curious waterfowl—black ducks and scaup in the main—swim in to see the show.

While photographing lesser snow geese in Texas, I went into the marshes armed with a roll of newspapers. The papers, wadded into large balls, were tossed around a clump of high grass in which I squatted at dawn. Several bunches of geese swung in for a close look at my reading matter decoys, and probably would have landed. At the time, however, I was concentrating on slow motion studies which only required that the geese be on the wing and within good camera range—30 yards with a 3 power telephoto lens on the camera.

Alaska Moose, Kenai Peninsular, Alaska. Cow and young bull (foreground) feeding in late evening.

Angler takes a close look. These scenes added interest to the motion picture, Salmon of the Serpentine.

Blinds

A blind can be anything from a stuffed ox to tufts of grass tucked into the clothing. The use of a stuffed ox is not as fantastic as it may seem—an English bird photographer used one to good advantage. The idea probably stemmed from the well known fact that birds, and wild animals pay little attention to horses and cattle. A Texas rancher told me that he hunted geese with a trained ox. Keeping himself concealed beside the ox, he drove the animal to within gunshot of the geese. "They never caught onto countin' the number of legs showin'," said the rancher.

Hunting coyotes in Saskatchewan we used a buckboard with a team of horses; keeping the hounds under a blanket and behind the seat. With this rig the coyotes would often allow us to drive within a hundred yards of them—close enough for a rip roaring sight chase which started as soon as we lifted the blanket off the dogs.

The Texas ox and the team of horses are types of living blinds which can be moved up without alarming the game. In the building of a blind, care must be taken to make the affair match its surroundings. A blind that sticks out like a new house will be given a wide berth until the game gets used to seeing it there. That takes time. If built right in the beginning, a blind is ready for immediate use.

Along the Nova Scotia coast, blinds built entirely of rocks become a part of that "rock-bound" shoreline; in the Sandusky marshes where cattails abound, the walls of open top shooting blinds are a fence of cattails tied together. Such blinds become a natural part of the landscape as soon as they are built.

When photographing blue geese on Vermilion Bay, Louisiana, I found little cover of any kind along the shoreline, but the marsh back of it was studded with large muskrat houses. I figured that the blue geese, being familiar with

Ducks at Ease, Canvasbacks, Red Heads, Ring-neck. A blind and a telephoto lens caught them napping on a Louisiana lake. •

Rock Blind, Baccaro, Nova Scotia. The loose structure of rocks blends with the landscape—used for pass shooting.

these houses, would not notice the one I built near the beach. This blind started with a hole in the ground for leg room; sticks with burlap thrown over them gave a mound effect to the roof; and dead grasses thrown over the burlap completed the faking. The finished mound looked so much like a muskrat home that I expected the rats to move in—instead, millions of mosquitoes came to visit without even knocking at the four small openings through which my cameras pointed. Of the 15,000 (warden's figure) geese I had around me that morning, not one suspected the blind although it had been built but a few hours before.

Many bird photographers use portable blinds which they carry with them on birding expeditions. The umbrella type is an easy one to set up. It is a large umbrella with sides; the handle part is the center pole which can be driven into the ground; the sides are then pinned or held fast to the ground with rocks. I have used a green, kid's play tent for a number of years; carrying around the fabric part only and cutting a center pole where and when I needed it. Camouflaged army pup tents make excellent blinds.

Portable blinds, erected on the ground or in trees, are used mostly when photographing birds at their nests. Procedure is to first put the blind up at a distance from the nest, and leave it there until the birds become used to it. After a day or two the birds accept it as part of their natural surroundings. The blind can then be moved closer and closer to the nest until the range is right for the camera equipment in use. Great care should always be taken in making the fabric of the blind secure—a loose piece flapping in the wind may be enough to keep the birds away. Small loops sewed to the outside of a blind will hold tufts of grass or branches which help camouflage the set-up.

Birds flunk out on arithmetic—they can't count over one. When the photographer is all set for his picture taking, he takes advantage of this weakness. Two people enter the blind while the birds are looking on, but only one need leave. As soon as the birds see him go out of sight, they return to their nesting activities, convinced that one from two leaves none.

There are places where blinds are not necessary at all in the making of bird pictures. The lonely Bird Rock in the middle of the Gulf of St. Lawrence, is a good example of such a place. Thousands of sea birds—gannets, murres, puffins, auks, petrels, and kittiwakes—nest on the top and cliffs of this small island whose only other occupant is a light-keeper. While the birds would all take to the air at my approach, they soon returned to their eggs and young within a few feet of me. All I had to do was remain motionless. It was even possible to work without a blind around the cliffs, while suspended by cable and ladder. Of the lot, the gannets were the most accommodating; they waddled up to squat on their single eggs almost within bill-reach of me, I could have touched them.

Another way of photographing birds and animals without a blind is by remote camera control. Here, the camera is set up and focused on a nest or feeding station tended by birds and animals. The camera shutter is tripped by a string that leads to a camp window or other hideout spot. Camouflage the camera with a few leaves or small branches—using your binoculars takes the guesswork out of string pulling time.

Camera!

All of the above discussion about senses, squeaks, and blinds, may sound like the longest way around the largest bush, but a study of Nature itself is the one logical approach to Nature photography. The outdoors is far from a studio set-up where flood lights can be adjusted and the subject seated just so! Outdoors, you must see and stalk the subject and photograph it where you find it.

The closest approach to studio conditions is wildflower photography, but even here there is little light control except waiting for the sun to illuminate the subject to best advantage. That takes time. The sun may not be around for hours and you're headed for other places miles away. To save time and catch things along the trail I carry a small hand mirror. With this, I can usually put a spot of sunshine where I want it. The mirror idea can be worked on other than flower subjects—it once made possible a series of motion pictures of a woodcock on its nest beneath a big log. The sun never did shine under the log. At another time, I used a mirror in photographing a phoebe's nest under a bridge—the favorite nesting place of this flycatcher.

One rule that should never be violated when photographing or examining the nests of ground nesting birds is never leave a trail close to the nest. Skunks, foxes, and many others with good noses, have a habit of following man's footsteps; if these lead right up to the nest, you're liable to find it robbed before the pictures can be made.

As a general rule a tripod is needed when working from blinds for several reasons: the light can be checked, the camera set up, and focused on the spot where the game is expected to be. The only movement necessary will be to press the button. Since telephoto lenses are required for close-ups, the camera should be mounted on a tripod in order to get pictures without the "jiggles." Correct tripod set-up is with one leg directly under the lens or straight behind the camera.

Nature Details

Entire motion pictures have been made around Nature details alone. From a naturalist's viewpoint, they represent the highlights of the area covered: its wildflowers, birds, animals, rock formations, forests and streams. Photographing a stretch of marsh or woodland through the seasons of the year will make an interesting and colorful movie. One photographer made himself famous by photographing insects in his own back yard.

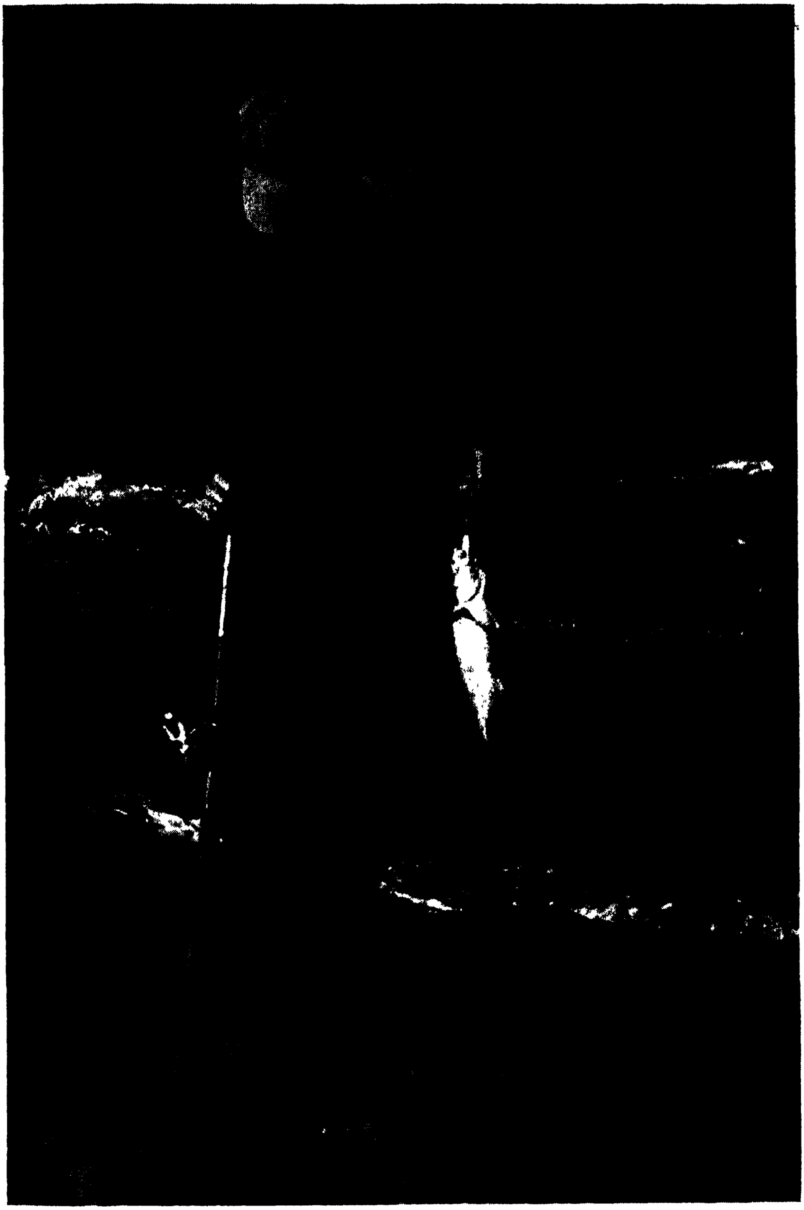
I cannot urge too strongly the use of a few scenes that tell something about the country in which the main action of the picture is taking place. The birds, flowers, and trees portray the seasons because they nest, bloom, and change foliage color at the same time, year after year. An angler stoops to examine a wildflower, followed by a close-up of the flower; a deer hunter pauses to admire an unusually red maple; a rock formation has the profile of a face. These, and thousands of others, are the details that mark the successful outdoors motion picture.

Chapter 6

FINS

This is chain guesswork at its best—the cameraman trying to outguess the angler, the angler outguessing the fish, and quite often, the fish outguessing all. At any moment the chain of reactions gets under way—what happens from there on out is anybody's guess and it can be all over in a split second.

Many sportsmen have the quaint idea that all a photographer has to do is press the button. Not long ago, I was with two noted fly casters on a wadeable stream. Courtesy of the stream forbade these from casting too close together. I was in the middle and out of camera range of both. At a strike, I was expected to jump, run, wade, swim, or otherwise get myself into position. When I elected to stay with one angler, the other was sure to get a fish on. To add to the problem, I was wearing waders which meant that most of the time I was in water up to my hips as I followed the anglers around. A fellow just can't do track work under such conditions. The angler can go down, get wet, and keep on fishing if he chooses; but when a camera goes under, picture taking is finished for that day and many more to come. The usual question at the end of a surge up stream or down was, "Did you get all that?" Many times the fish was creeled or returned before I arrived on the scene. On one occasion an angler coyly netted a trout away from the camera but came up with the same stock question.



Bluefish, Nantucket Island, Massachusetts. Background for a surf caster.

As far as I know, there is no solution to the stream problem except to wear a dried up moose hide the purpose of which is to parry foolish questions, or in the words of Izaak Walton, "Though I love civility, I hate severe censures."

My usual approach to the angler with fly or bait rod is to goad him to action by offering to change places with him and otherwise get him fishin' mad. At the same time I size up the fishing water; look to the background; and then maneuver by boat or on foot to have the sun generally behind me. Once in position, I check the light, set the camera, and wait for action. If the fish show a willingness to be fooled at this place, the following scenes are made:

1) General scene of the type of water being fished, with angler at a distance. Panoram camera (s-l-o-w) to show type of country surrounding the fishing water.

2) At a distance of 40 to 50 feet get the angler casting with rod and line action showing.

3) A close-up, 4 to 6 feet with standard lens, of how the angler holds his rod (the grip) is always a good sequence scene. Moving in to do this scene may annoy the angler no end and besides it doesn't do the fishing any good. The scene can be made any old time and spliced in its place at the editing bench.

4) Holding the distance of 40 feet or so from the angler, I wait for him to get a fish on. The kind of tackle used and the species of game fish on the end of the line determines how long it will take to land the fish. Fifteen to 25 feet of movies on playing the fish is about all that is necessary for the scene unless the action proves to be unusual.

5) When the fish is ready for netting or boating, I move to close range for the scene—10 to 12 feet.

6) After the fish is netted or boated, the hook must be removed and every fisherman knows how unpredictable the

time is for that operation. How to handle this scene is described later on.

7) If the fish is a keeper, show it being put on a fish stringer or creeled. A few fish will be needed for the end scene—the fewer the better. In repeating the above sequence I always show several fish being released—it's good sportsmanship.

The above scenes photographed, or edited, in the order given, make good screen sequences and they are the easiest to get. But they don't tell the whole fishing story by any means. Get them first is the rule.

Then comes the tricky detail of showing a fish rising to a dry fly or surface bait; the strike, and the jumps that follow (see jump photography Chapter 9). When I try for the scene of a fish rising to a lure, I'm prepared to waste plenty of film.

The first move is to locate a feeding fish—it may be just a dimple on the surface or it can be a resounding splash. If a trout or salmon makes a pass at a fly and misses it, you have located a feeding fish. In the event of a natural rise, get as close as possible to the fish without putting it down, then wait for another rise. When that happens start the camera going on the receding rings. At the same time the angler casts to the rise. The scene calls for teamwork and patience, but it's a gem when spliced between scenes 3 and 4.

Plenty of film can be wasted on scene 8 (hook removal.) There is no way of telling how well a fish is hooked until one tries to get the hook out. The hook may drop out in the landing net, or its removal can develop into a major operation during which time the spring in the camera runs down, leaving a rather tiresome scene with the hook still fast to the fish. Good practice is to start the camera on this scene giving the angler about 8 seconds on the operation. If the hook comes out, fine; if not, stop the camera and resume the scene when the hook is freed in the fish's mouth.

During a trout fishing trip in Pennsylvania, another interesting detail was added to the above sequences. Early one morning there was an unusually large hatch of green caddis flies to which the brown trout were rising. It was an easy trick to catch one of these flies and place it on the angler's hand beside his artificial. This extreme close-up scene which was made with a telephoto lens, supplied the answer to what fly was being fished, and why.

Close-ups of flies, plugs, metal squids, or what have you, add both interest and information to a fishing movie. On a tuna fishing trip off Wedgeport, Nova Scotia, I detailed the sewing of the hook into the bait (whole herring) as well as the tackle rigging: swivels, steel leader hookup, and the use of a double line back of the leader. On this movie, the rigging of the "teaser" was also shown. The "teaser" is a string of half a dozen or more whole herring, towed close astern of the fishing boat. This proved to be a thriller of a detail because later on, a giant tuna with gaping mouth and dorsal fin showing, grabbed off the first two herring on the "teaser." The action was caught at a range of about 20 feet with a one inch lens.

In the making of a movie on striped bass fishing I introduced the angler, Harold Gibbs, at his fly tying bench tying one of his striper flies. Later, the action of this 3¼ inch fly was photographed as it was retrieved through the water by intermittent jerks. This fly showed up well at a range of 5 feet with a one inch lens—panoraming the fly through the water.

One of the details called for in the making of a picture on smallmouth bass fishing for a bait manufacturer, was the action of their "jitterbug"—a surface bait. Two scenes of a

White Water. Travel scenes make good sequences—they produce a feeling of progress in stills or movies. •

Serpentine Lake, New Brunswick. The elements of sunrise, ground fog, and still water proclaim an early start.

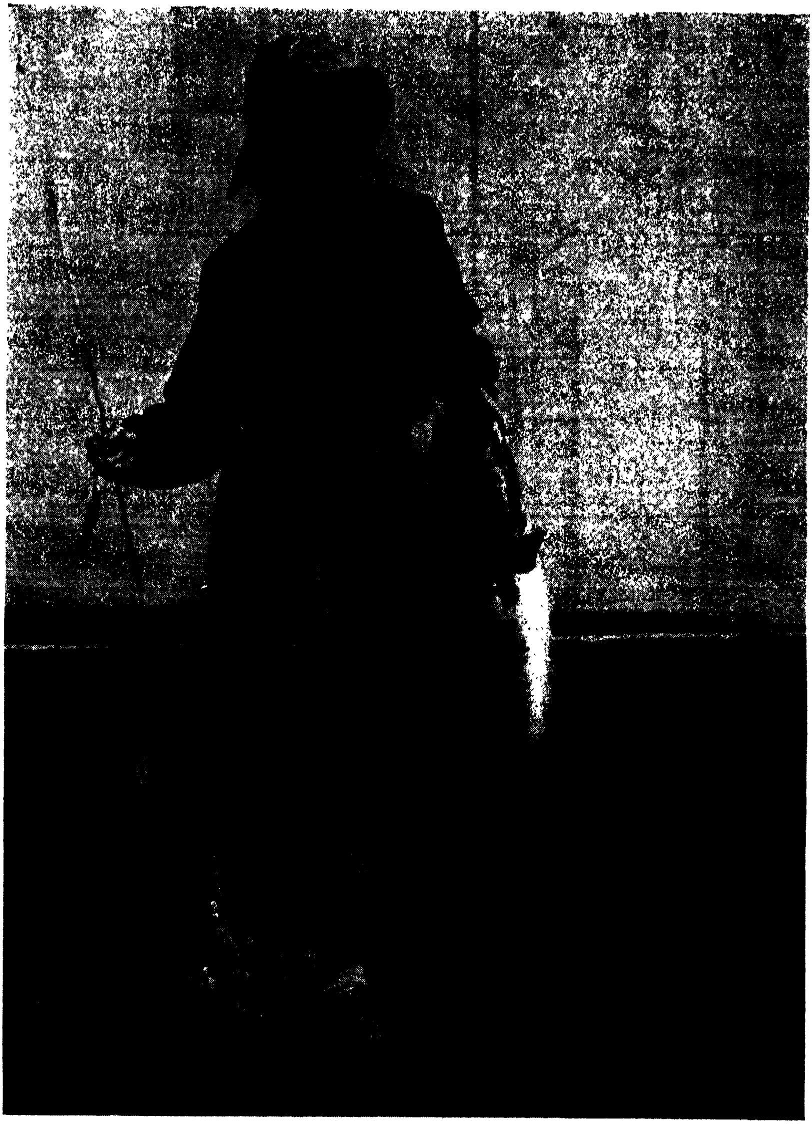
red and white plug where made at a range of 6 feet and on a day when the water was mirror still and the light perfect. The first scene was made at normal silent speed; the second in slow motion. The slow motion scene shows exactly how the bug wiggles and splashes through an act that brings Mr. Bass up with all fins a'flutter.

There are literally boat loads of details which go to embellish a fishing picture. An angler opening his bait box or well stocked fly book and selecting the lure of the moment; the filleting of a fish preparatory to a shore dinner; and don't overlook the humor shot when somebody happens to get wet or his last fly is hung up in a tree which has no limbs for the first ten feet.

While most sportsmen are rated as felinophobes (cat haters), two white kittens, Marsh and Mallow, stole the show during the making of a picture on spinning on Fish Lake, Maine. Without twitching a whisker, the kittens followed fishermen to the dock where live bait was being netted. The kittens took up their casting position beside the minnow pail where they did very well with their sets of built-in hooks.

At another time, I caught up with a porcupine roosting on the outer edge of floating sticks and logs—"dry-ki" to a Maine guide. Porcupines don't like to get a ducking any more than fishermen do. In his hurry to make the shore, this bundle of quills missed his footing and took a beautiful laugh-provoking wetting. At the English Setter Club of America field trials, I happened to notice a fellow in the gallery with a Scotty in tow. Scotty was all decked out for the occasion with a large red ribbon around his neck. While not in the running, the cocky little fellow added the much needed touch of humor.

These and many other humor scenes are the ones to watch for—they are much more effective than the planted gag.



Pollock on light tackle, Blanche, Nova Scotia. 24 pounds of pollock on light tackle rates a picture any day—especially when the tackle handler is young. Pictures like this are in common use by the tackle industry advertising or catalogues.

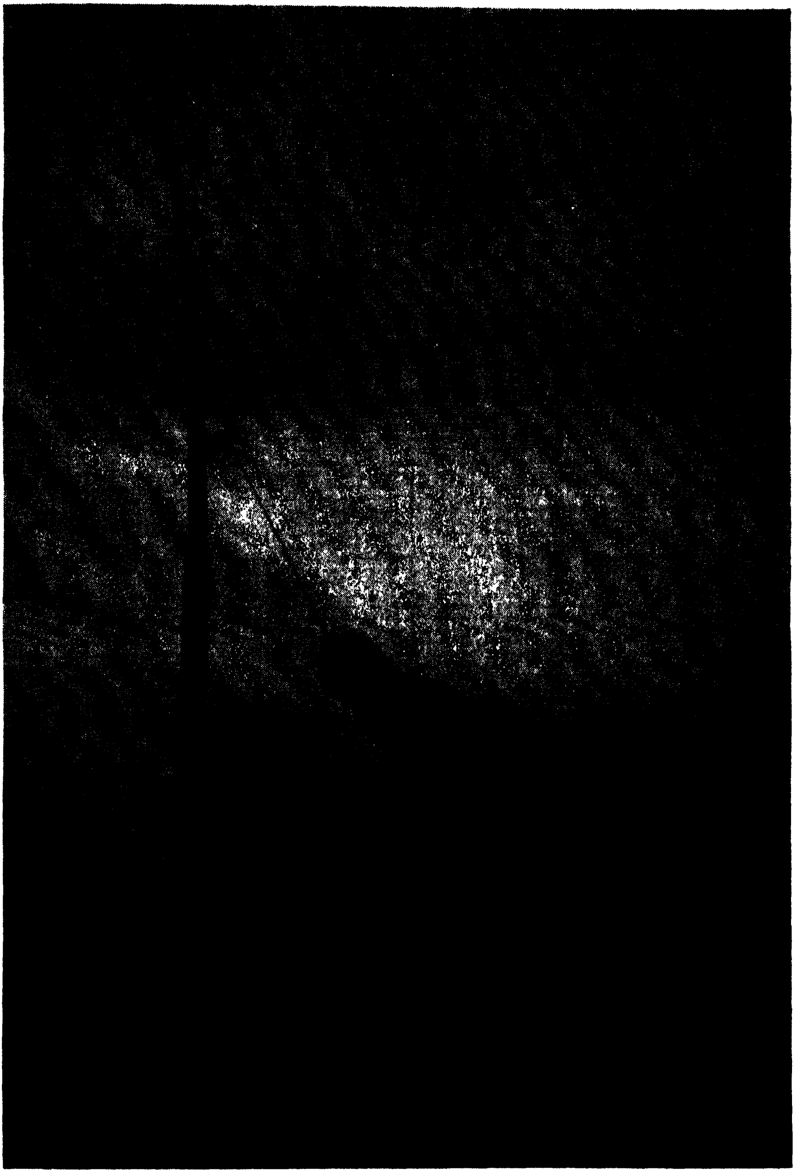
Weights and measures tables, and their use, are known to a few honest fishermen, others carry in their kits a device called a "de-liar," which they feel puts them in the higher brackets of honesty—when you're looking over their shoulder as they use it. Some of the photo-ingenious lads like to hold their fish at arm's length toward the camera—a trick they learned from pictures of people with their feet propped up close to a camera. The effect of this is to exaggerate the size of feet or fish.

Unless there is something of known size placed beside a fish—the butt end of a fly rod, or a foot length scale—weights and measures know no ceiling. Application of this scale-in-pictures idea can be called the "photographic de-liar."

One group of details that has had practically no attention at all in the making of fishing movies, is extreme close-ups of the fish. By extreme close-ups I mean working with a picture area not larger than 2¼″ x 2½″, which means photographing a small part of a fish. Scale patterns of such game fishes as speckled trout, lake trout, landlocked salmon, or tooth details of a musky are magnified 28 times when projected on a 6-foot screen. Thus magnified, the details are both entertaining and enlightening. The small scales and colorful spots on the brook trout are magnificent—a great many people don't know that a brook trout has scales, they're so small. The enlarged edition of musky teeth leaves no doubt at all as to why an angler uses pliers for the hook removal operation.

Fish, as everybody knows, lose color rapidly as soon as they are dead. While still alive, they change slightly as they are brought from deep to shallow water, and probably at the instant they are hooked. Knowing this, the close-ups must be made on living fish for best results.

Procedure for the making of this scene is as follows: tell



Tuna Fishing, Wedgeport. Playing a tuna is a back breaking job that can go on for hours—there is little to photograph except rod bending.

the angler you want nothing but a sparkling beauty with sides deep enough so you can select the most colorful portion for the scene. This will irk the angler as usual but you're next order will have him cracking his rod into little pieces. To effect this, tell him to handle his fish gently and once brought to net, keep the net under water while bringing the fish to shore.

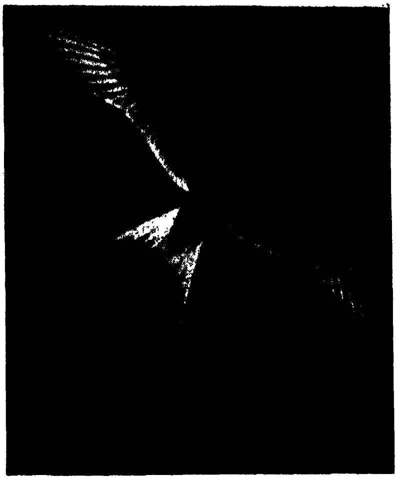
Now comes the ticklish part: the angler has to carry the live fish and pose it as directed—not just anywhere, but exactly, where, from the lens viewpoint, the color pattern shows up best. In moving the fish from one position to another, the angler will not see any change in color, because, by that time, he can see only red.

For sheer beauty, the best fishing scene I've ever made was in the Nova Scotia wilderness during the filming of "Squaretails in Moose Country." During July, the nights there are blanket cool, and the days warm. This sudden change of temperature produces what is known as river mist —the result of cool air over warm water. On mornings when there is no wind, the mist hangs over the streams until the sun "burns" it off. You'll have to be up early to see it, then stand facing the east just as the sun's rim shows through the forest skyline. At that instant, and for a few seconds only, the grey river mist is transformed to a curtain of color that floods the landscape.

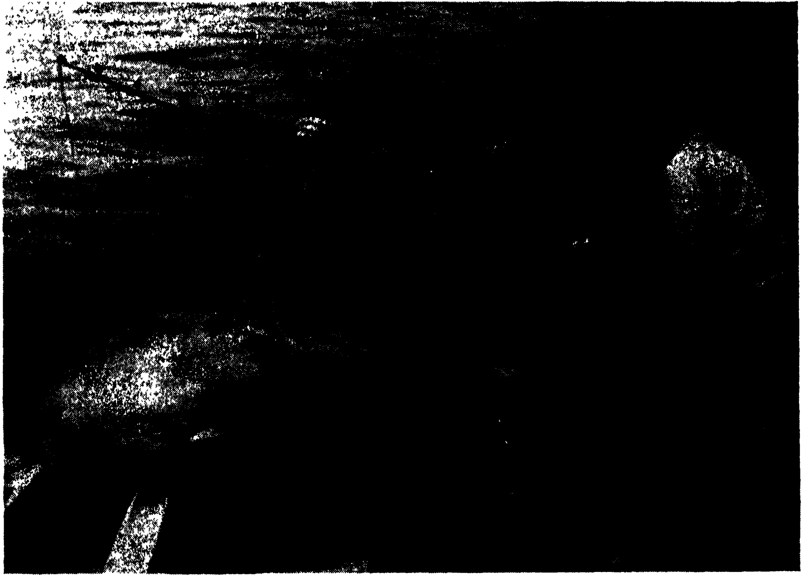
It was against this background that I planned the scene. The angler was to cast, hook, and net a squaretail during this short interval of color.

In spite of the well known fact that there is a terrific surge of action in all wildlife at dawn, some anglers will argue that fish don't bite early, and so again I had a major argument on my hands. Through the lamplight, yawns, and grumblings, my companion agreed that while he didn't

"Mug Up" Time. The sloping horizon and wake of the boat accent the lilt of the ocean.



Fish Finder, Arctic Tern. Gulls and tern are to the fisherman what bird dogs are to the gunner.



The tuna's only appearance is usually at the boating scene—gaffing and boating are the climactic scenes on this game fish.

know what the heck I was trying to do, he'd go along to see if what I'd described could actually happen.

In the making of this scene you must first know where the fish are, and be there before daylight. You must also know where the sun will pop up with relation to the scene. Everything must be set and ready for the magic color curtain. The camera is set to point directly at the rising sun—the angler stationed in the near foreground.

The result is in low key. The action of the fisherman is silhouetted against gorgeous color, and the spruce tree skyline gives great depth to the scene. On account of the very poor light, I used a lens setting of *f*/1.5 and a camera speed of 16 f.p.s.

During this discussion about fish and their rod wielding enemies, I have accented camera to object distances, many of them close-ups. If you don't believe in close-ups, watch the next neighborhood movie and be convinced. I had my first lesson on the importance of close-ups during my honeymoon fishing trip 30 years ago. In a springhole near camp, there lived an "old switcher"—meaning a very large squaretail trout. When I brought this trout to camp I said to Mrs. S.: "This is a squaretail trout, and it's a dang big one. I'll hold it while you take a picture of the trout—not me." I'm flattered now to know that she was not looking at the trout at all—she got me, half the camp, and the 18 inch beauty as a minor detail.

Leaving the spruces, hackmatacks, and alders behind, we now move to the type of water where the backcast can get hung up on nothing but the limitless air above the bays and the ocean.

The same set of photographic rules applies here: close-ups, lures, detailing, etc., but maneuvering is strictly a catfish of another color. As soon as you set foot on the deck of a saltwater fishing boat, you forget you own a tripod.

There were several times during a two weeks cruise on board a swordfishing schooner in the north Atlantic when I almost forgot I owned a camera. As one of the crew put it, "This is about as rough as she ever gets out here."

Whether it's tuna or swordfish on the high seas, stripers off Cuttyhunk, or trolling and casting in a small bay, holding the camera reasonably steady is the big problem. As long as the action is confined to a pitching boat, and that applies to fish being boated, the best system I've been able to work is to glue body and camera to the boat itself; lean on the wheelhouse, or wrap the arms around a mast, and swing with the boat.

While on board the swordfisherman, I used this method in the making of several scenes from 50 feet up in the rigging of the foremast. This vantage point gave me a bird's eye view of the striker in his pulpit at the tip of the bowsprit; showed the finning fish on the surface, the launching of the harpoon, and the strike. The same method worked well on tuna off Wedgeport where the famous rip tide tosses tuna boats around like so many gull feathers.

The screening of scenes made in the above manner gives the audience the impression of being on the pitching, swaying boats.

No tuna fishing picture, or for that matter, any fishing picture in which the angling is done from boats or canoes, is complete without a few scenes from a follow-up boat. This calls for skillful maneuvering because there are many times when the follow-up boat must not be too close to the angler. The line carrying capacity of big game fish reels may be 1000 yards or more, and there are times when the fish being played may have several hundred yards of line off the reel. If the following boat happens to cross and foul that line, it will be torpedoed by the strongest of seafaring words. I'm sure the late President Roosevelt would have had a special gift for me had this happened while I was following him as official photographer during his tuna fishing trip in Nova Scotia waters.

When a tuna is ready to gaff, the follow-up boat closes in for the scenes of the boating of the fish. The length of time it takes to bring a tuna to gaff is unpredictable. On one occasion we boated a 507 lb. tuna in 20 minutes; at another time, during the International Tuna Tournament, I followed a member of the Cuban team for 6 hours only to find out later that he lost the fish after 8 hours—and that's by no means a time-of-play record.

When working from the decks of follow-up boats, I use a semi-crouch position with both knees bent. In this relaxed position one can keep a distant boat in the viewfinder, steady enough for acceptable screening on this type of work.

Scenes made from a pitching dory while the doryman was playing a 500 lb. swordfish, were not so easy—as a matter of fact it's a downright dangerous place to be at times. I thought I could sit on a thwart and hang on, but the doryman advised me otherwise in these words, "Sometimes the beggars poke their swords up through the bottom and if you're sittin', they'll get you where it hurts." Several punctured dories on board the schooner convinced me that a dory was not the place for humor shots. But the captain's pup, the crew's two kittens, and the odd appearance that cookie put in as he threw out the marker barrels, provided many laughs. Flocks of petrels feeding astern on the cleanings of the fish, a whale abeam, and a gorgeous sunset, against which the schooner was maneuvered for my benefit, provided the touches of the sea.

Under the heading of competition in the field, there is a place in fishing pictures for a scene or two of fishing birds. On tuna fishing trips the herring gulls made quite a nuisance of themselves by following the boat and stealing the bait as it was tossed over to attract the tuna. The gulls were photographed in regular and slow motion as they sailed and dived for the bait. While casting for striped bass in Plymouth Harbor, a large flock of tern started feeding within a few feet of our boat. Unlike the gulls who take mostly dead fish, the tern dives for its live fish and in doing so puts on a real show. Both these birds—tern and gulls—are to the angler, what the pointer is to the upland bird shooter. The birds, by indicating the presence of bait, also tell of the presence of larger fish, driving the bait to the surface. Anglers who know their business invariably steer their boats to feeding birds.

Other birds such as pelicans, mergansers, great blue heron, and kingfishers are all good fishermen worth photographing. The reader is referred to Chapter 9 where the matter of bird flight photography has special attention. As a general rule I gather footage on fishing birds at every opportunity—the scenes can always be spliced into a fishing picture where time did not permit the making of such scenes. When this is done, make sure that the species of fishing bird spliced in, is correct for the locality—pelicans don't live in the north Atlantic for example. Again, make sure the background of the country where the birds were photographed, is similar to that of the scene of fishing.

Chapter 7

FUR

Under this heading falls the small and big game to scatter gun, rifle, and bow. Nobody seems to be sure where big game leaves off and the small fry begins and it doesn't matter—the rules for photographing them all are about the same.

The most important set of rules to observe at the outset of any hunting expedition is the TEN COMMANDMENTS OF SAFETY as published by the Sporting Arms and Ammunition Manufacturer's Institute:

1) Treat every gun with the respect due a loaded gun. This is the cardinal rule of safety.
2) Carry only empty guns, taken down or with the action open, into your auto, camp, or home.
3) Always be sure that the barrel and action are clear of obstructions.
4) Always carry your gun so that you can control the direction of the muzzle, even if you stumble.
5) Be sure of your target before you pull the trigger.
6) Never point a gun at anything you do not want to shoot.
7) Never leave your gun unattended unless you unload it first.
8) Never climb a tree or fence with a loaded gun.
9) Never shoot at a flat, hard surface or the surface of the water.
10) Do not mix gunpowder with alcohol.

35 Pounds of Good Bobcat. The growing popularity of bow hunting suggests interesting picture stories. The hunt with well trained hounds is a thriller.

Return To Camp can be a striking scene—especially when the canoe cuts through still water covered with flaming red maple leaves. Scene from Buckskin, made on the Clyde River, Nova Scotia.

There is no reason for breaking these rules in the field or out of it, and violations most certainly have no place on a motion picture screen. The rules themselves suggest an endless number of motion picture scenes which add to the value of any hunting picture, in the interests of safety alone.

Here are a few suggested scenes:

Rule 2 suggests a scene where the hunters entering a car, or camp, have the actions of their guns open. To accent the point, a close-up at 4 to 5 feet can be made of one of the guns in a hunter's hands.

Hunters leaving car or camp with gun action open. Apply rule 3 by having a hunter squint through the barrel of his gun, making sure it's free of obstructions. This can be followed by a scene of a hunter loading his gun—after all you're on a hunting trip. Get a close-up of the loading process.

Hunter using binoculars gets across the "look before you shoot" idea.

With two hunters travelling single file along the trail, the gunner in the rear carries his gun with muzzle pointed to the side or rear. This accents rules 4 and 6 about control of the muzzle of a gun.

There are usually plenty of fences, stone walls, and fallen trees over which the happy hunter must climb in his search for game. Climbing over obstructions makes a good progress scene—see that the hunters obey rule 8 about loaded guns. Show guns being unloaded.

Safety rules which apply to cars and guns, are equally important with boats and guns. There is also a right and wrong way of entering and leaving boats. Never, for example, would a hunter or fisherman be pictured pulling the bow of a canoe up, high and dry, while his companion was in the stern seat. The nose of a canoe can be slightly grounded; the man in the bow then gets out and steadies the canoe while his companion steps out. When getting into a canoe, the canoe should be afloat, and steadied by one of the canoemen while the other steps in.

In the bush there are other safety rules to watch, and they all suggest movie scenes: the correct use of an axe or hunting knife; obedience to fire laws in the dousing of camp fires and disposal of pipe ashes and butts; and if a hunter has the slightest regard for his eyes, he'll stay far enough behind the lead man to avoid branch swing.

In the filming of the hunt, many of these seeming trifles can be used as movie scenes. Watch them and see that they are done according to the rules of safety, and good woodcraft. Beginners appreciate seeing how things are done right, experts applaud perfection.

There will be hounds to photograph on some hunts. Bobcathounds, coonhounds, foxhounds, rabbithounds, or just plain mutts. The behavior of hounds in the field indicates several distinct types of scenes:

At the start there will be general casting or searching for game.

The line drive, where the hounds have made game and are hot on the trail.

The sight chase, and a hard one to get, where the hounds follow the game by sight.

If the game can climb trees—bobcats, coon—there will be a treed scene which can be a lively affair as far as dog action is concerned.

Cottontails have a habit of going underground in which case the beagles come along and do a scene known as "marking hole."

In addition to the above scenes there may be one or more showing obedience in the field; uncrating or unleashing the hounds before the hunt; and a scene that always arouses interest is a close-up portrait of one or more of the hounds.

Hold the camera so close that only the head of the dog shows through the view finder.

Judgment and luck must be on the side of the photographer whose job it is to get shots of running game as well as the hounds. It's good judgment to observe that game on the jump has its own system of street signs and route numbers—they are in the habit of following these trails and runways every day, and every night of their lives. When jumped, they usually follow a well known route.

In the filming of "Beagles on Cottontail," I first noted the routes taken by the beagles when they jumped game from one particular piece of cover. Returning to the same cover a day or two later I was all set to outguess the game. As luck would have it, one cottontail ran between my legs, and that's about as close as a fellow's expected to guess. A few seconds later, I had the beagles in full cry, head on.

Bobcats, foxes, and rabbits also have a habit of circling over well established routes. A bobcat may use a fallen tree over which he crosses a stream, or he may be in the habit of swimming a stream at a spot to his liking and getting rid of the hounds in that way. Chances are the cat will keep on using these same crossing places time after time. Once these crossing places are known, the man with the camera has an almost sure fire set-up.

In their ramblings through the forest, all game leaves signs to be read by the experienced woodsman—some too faint for the photographic scene, others a greenhorn can't miss. There are tracks in the snow, mud, and sand; here a black bear left his fresh tooth and claw marks on the trunk of a tree—the old markings show that he has visited this same tree for several years. Near the base of maples and spruces, the scraped off bark is the work of a buck—here are some of his pawings in the ground; there, his runway. At another point we find trees with bark scraped off—it looks

Buckskin In The Making. The Chipewan Indians use wire instead of a "V" stick to break the grain—either way, the operation uses up hours of elbow grease.

Angbwasa, Cameroun, West Africa. This is the Bulu name for a hunt with belled dogs and spears. The dogs rarely bark and never open on game—porcupines, scaly anteaters, or small antelope were all "good chop" to the boys.

like the work of a buck, but it's too high for him—that's the work of a bull moose during the rutting season. These are photographic scenes which indicate the presence of game, and tend to quicken the pulse of the hunt as it is when shown on the screen.

On the matter of the game itself I may be chickenhearted, but I've found that most audiences agree with my viewpoint which is never to show a cottontail being upended, moose and deer going down, and never, never photograph wounded game animals. The one exception I've made to this rule is in a picture on bobcat hunting where I killed a 35 pound bobcat with bow and broadhead. The cat was treed by hounds; I set the camera and gave it to the guide who kept it going on the cat while I did the dirty work. It's a well known fact that the bobcat is one of the most vicious and skillful destroyers of small and big game (deer). Knowing this, the audience sanctions the kill. It's my guess, too, that taking the cat with bow and arrow plays its part in making the kill scene acceptable.

Even the skinning of game, informative as it is to those who want to know how to do things, is a risky scene to try. The ladies are the principal objectors to skinning scenes. Bless their hearts, they moaned over a scene in "Wilderness Winter" when a trapper removed the hide from a blanket-sized beaver. After one showing of this picture I noted that one of the groaning ladies in the audience was actually wearing a beaver coat, which all goes to show that lifting the skins from the backs of their original owners, from a feminine point of view, lacks window shopping appeal. On the other hand, a bass can be bashed in the head, filleted, and skinned without the flicker of a well madeup eyelash.

There are a number of ways of showing the quarry after it's taken, without being too gory about it:

Rabbit hunters leaving the field with beagles on leash,

Retriever Trial. Setup for judges, handlers, decoys and simulated blind—official guns were stationed on the opposite bank. Del Bay retriever trials, Summit Ridge, Delaware, 1948.

Beagle Movie Star. Growing up and training sequences to the first hunt under guns is a logical and interesting way of portraying gun dogs. At 4 weeks this beagle puppy was a movie star—at 8 months he was the hero of the pack in Beagles On Cottontail.

and carrying a rabbit or two, is enough to show that the hunt was a successful one.

A deer hunter approaches his buck on the ground, empties his rifle (safety angle), and kneels to examine his trophy. At the time this scene is made, get a close-up of the head and antlers. If this same head is mounted and later hangs in the rumpus room, it could be photographed and added to the picture as an opening scene. The story of the hunt would then follow as it happened.

Toting the game to camp by foot or canoe is always a good scene, but don't pick any old place in the woods—look for a pictorial setting, or a run in the stream down which the canoe must come.

At camp there will be another scene where the game is hung.

In "Buckskin," I carried the scenario beyond the usual deer hunting picture by tanning buckskin in camp, without aid of chemicals, and using tools any woodsman would carry with him. The idea was to show how the early woodsman operated in the wilderness when he needed a new buckskin shirt. The process is known as the brain tan, and is still in use by a few primitive Indian tribes such as the Chipewyans, who live to the north and west of Churchill, Manitoba.

The process from raw hide to finished buckskin takes about two weeks, and I'll give anybody fair warning that it is not an easy job. It calls for plenty of elbow grease, and absolute immunity to stench which begins with the soaking, and carries right through to the final smoking operation.

A motion picture employing the brain tan process can well be classed as documentary in that it brings to the screen the details of a method of tanning, valuable in the days of the pioneer, but no longer in common use.

I've always paid movie tribute to the guides on every fishing and hunting trip—they're the fellows who do all the hard work, share the knowledge of the game they know so well, and entertain us with the yarns we love to repeat. Plan a place for them in your movie: show them toting back-breaking packs, backing canoes, moose calling, or building fires for the benefit of the sportsman's inner needs. When they point to signs of game, get the camera going on them—then the sign itself in close-up. Tell these men what you want in your camera by way of game shots, and they'll put you where you can get them.

Field Trials

As a member of the gallery at a field trial, a photographer can expect little more than an over-all picture. Dogs running in competition, and frequently for high stakes, are not to be approached for anything bordering on a close-up. Both judges and handlers are quite strict, and justly so, about keeping the gallery in the background of action. There are rare occasions when judges will permit a serious minded photographer to accompany them in the field, but only when the camera handler has a knowledge of gun dogs as well as cameras. It's a ticklish spot where a single false move is inexcusable.

After a trial is run, it is sometimes possible to get the handlers or owners of the winners to take them into the field for photographic purposes. This will make good follow up sequence (motion picture) if you were lucky enough to get the same dogs in action during the running; and it is standard practice for the making of stills for newspapers and magazines. The break-away, scenes of the gallery, judges, kennels, and the presentation of awards, are all scenes that can be made without interfering with field trial procedure. Cardboard signs pointing the way to a field trial, the name of the club where the trial is held, and close-ups of lists of drawings make interesting titles.

Retrievers

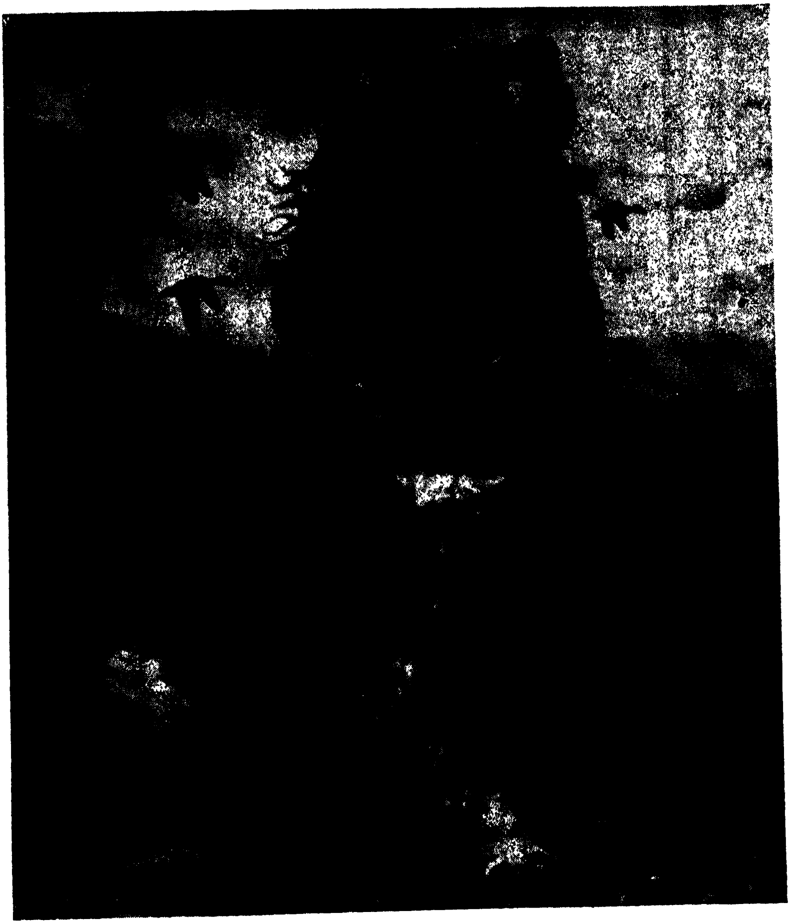
Retriever trials on land or water are much easier to get at than beagle or pointing breed trials because the action is more or less confined. Let us visit the 1948 fall field trial of the Del Bay Field Trial Club at Summit Bridge, Delaware. There are two stakes: non-winners, and open all age. Breeds entered are Labrador, Chesapeake, and Golden retrievers; judges, Henry P. Davis and Walter Roesler.

On the water retrieve set-up, all entries are started from a simulated blind (plywood) with a few duck decoys set out in front. Official guns are stationed at two points on the bank opposite the blind; one directly across from the blind, the other about 100 yards to the right. From the farthest station a live mallard is tossed into the air and shot so as to fall in the water. Immediately after, a shot is fired from the nearest station and a dead mallard tossed into the water. The dogs are expected to mark down both kills and retrieve them to hand in the blind.

After the water performance we move to the second stage of the trial—the land retrieve. The official guns again have two stations in the field: one tossing up live pheasants, the other a dead bird thus giving the dogs two birds to mark down.

Final judgment on "call backs" in the open all age stake is made on what is called the "blind retrieve." In this set-up, the official guns are confined to one station on the opposite bank of a small body of water. They kill a mallard, dropping it in the brush behind them; and the competing dog is ordered to make the retrieve. Meanwhile, and unknown to the dog, a dead mallard has been planted on a point of land about 150 yards from the guns and on their side of the water. On this retrieve the handlers are allowed to range some 25 yards along the bank as they direct their retrievers to the hidden bird.

I have described these settings in detail because they represent retriever trial standards and the photographic problems surrounding them. The reference to confined action is now obvious: on both land and water retrieves, the gallery was not more than 60 feet behind the handlers and judges—without taking a step, they could follow the performance of all entries in the various stages of the trial. Under these cir-



My Springer. Posed in front of an enlarged photograph of waterfowl on the wing.

cumstances a camera equipped with a 2X or 3X telephoto lens will produce good overall pictures from the gallery. Weather is the big snag—rain or shine the show goes on; and please, no flash equipment when working close to competing dogs.

Chapter 8

FEATHERS

The TEN COMMANDMENTS OF SAFETY applies to this chapter in the manner already outlined.

The heading for this chapter immediately points to the use of bird dogs which are somewhat easier on the photographer than chasing a pack of hounds, but the fellow with the camera is in for plenty of track work just the same. A photographer really should be at least half pointer in order to find the birds ahead of the dogs, then wait for the dogs to come up and make their find.

The first thing to take advantage of is the sportsman's knowledge of his dogs. He can rattle off a three generation pedigree on any of his dogs without drawing breath. He's the fellow to indicate the sequence of scenes to be made, because he knows what his dogs can do. A good cross section of gun dog performance will include flawless performance and errors—the best of them make mistakes as every handler knows. If this were not true, field trial judges would find themselves in a tough spot when it came to announcing the winners.

For the benefit of the camera fan who may not be familiar with bird dog performance, the following breakdown or divisioning of action will serve as a general outline of scenes to be made.

The break-away or release of the dogs at the start of the hunt.

Handling of the dogs in the field while they are in search of game.

Dogs finding game and going on point. One of the best ways to get this is to mark down flushed birds, and get stationed near that spot before the dogs arrive. Have the camera going on the dogs as they work up to the game and make the point.

"Backing" scenes, where one dog is on point and another dog coming up goes on point, thus honoring his bracemate's point.

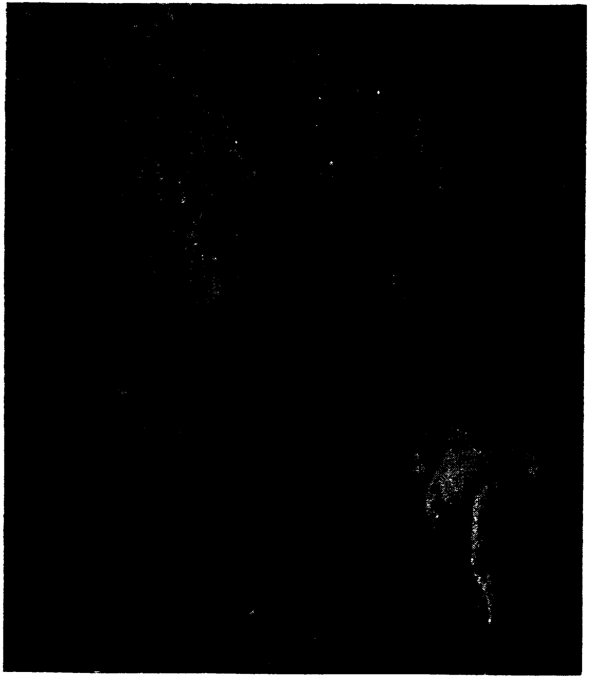
Hunter flushing birds and shooting—orders his dog to make the retrieve.

Dog retrieving dead bird, and bringing it to hand—good place for a close-up.

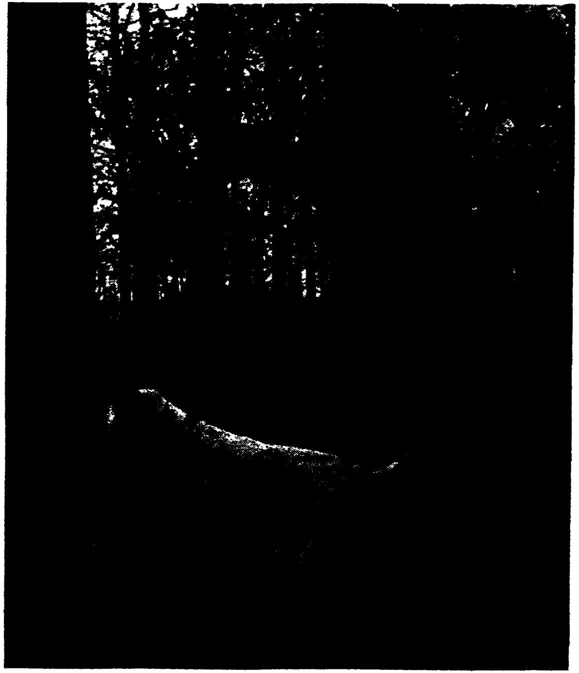
There are many breeds of gun dogs used in upland game bird shooting these days—each breed with a style of its own. There are dogs specially trained on pheasant, ruffed grouse, quail, or woodcock. Then again there are numerous breeds of retrievers used by the waterfowl shooters, and noted for their spectacular performances in the water and marshes, as well as on land. But since this is a book on photography, rather than an encyclopedia of gun dogs and their field manners, I can only recommend that the man with the camera keep his eyes open to the events as they happen. Having once observed the pattern of action, the scenes to be photographed will suggest themselves because, in the main, there will be repeat performances.

Always work with the camera at ready. Check exposure settings as the cover and light varies. Rewind the camera *immediately* after every scene.

Without aid of dogs, the bird hunter is strictly on his own as he walks up his game from the marshes, fields, and brush. This is known as "jump shooting"—the trickiest of all wing shooting. The camera problem is tricky, and difficult be-



Gun Dog Teamwork. An important scene to get when photographing bird dogs in action—the pointer in the rear backing or honoring the point of his bracemate with the gunner.



Tense Moment. Quail are where you find them—cover and light complicate the camera problem.

cause it must be clicking off the frames before the bird is hit in mid-air. To add to the problem of beating the shooter to the bird, the location of the game is usually unknown until it bursts from cover to the right, left, front, and sometimes from the rear. The entire action is measured in seconds, and fractions of seconds.

I recently made a motion picture, "Tote Road Grouse," on jump shooting ruffed grouse. The old tote roads, along which we made the picture in the Maine wilderness, had not been in use for many years. In many places, alders had grown up in the roads, and where there were no alders, the grass was thick and high. Both sides of the narrow roads were dense with spruce and fir. In such cover the grouse had short distances to go before putting the woods between us in their usual tricky way. Everything in the set-up put the gun and camera work in high gear.

As a matter of curiosity, and I'm sure every grouse hunter will be interested, I made a series of timings (by frame counting) on some of the slow motion scenes made on this grouse hunt.

Scene 1

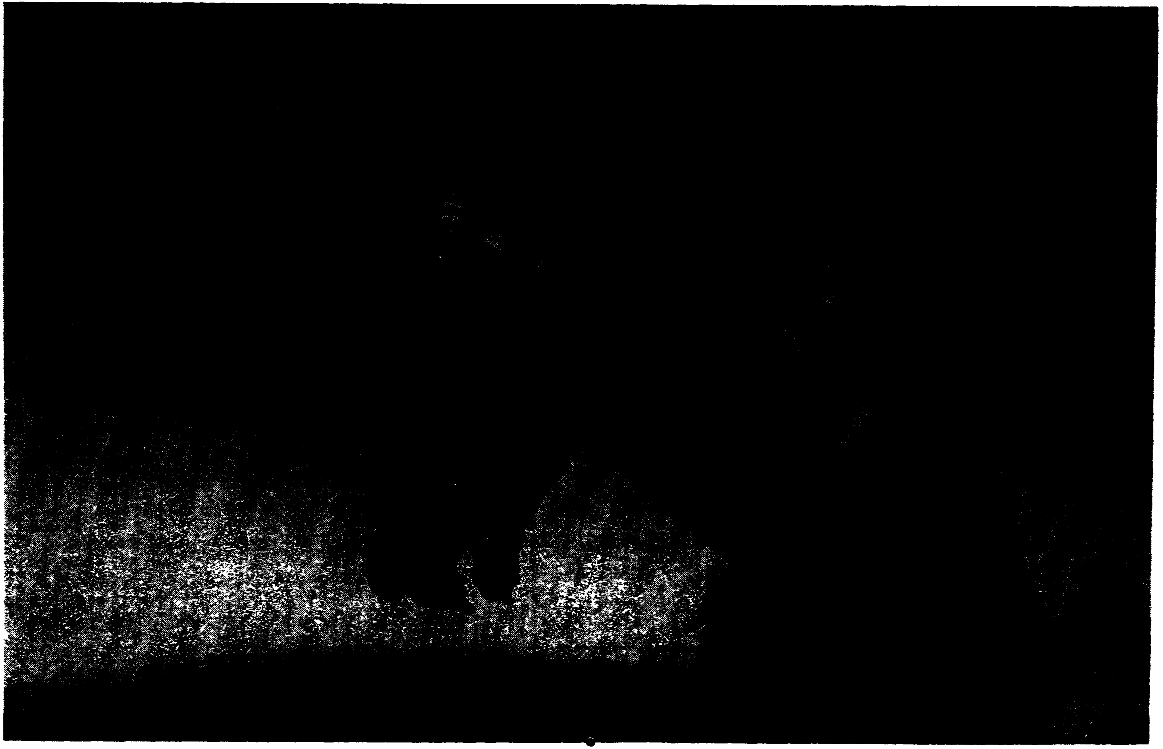
Grouse not seen before it flushed from some low alders in the road. Bird went straight down road for a few yards, then swung into thick woods going out of sight.

Shooter and grouse in picture as grouse cleared low alders. Shooter fired at and missed grouse .4 sec. after camera was started. Bird remained in picture .8 sec. after shot. Total length of scene: 1.2 seconds.

Scene 2

In which the shooter scored a perfect double.

Two birds flushed from deep grass—the second bird left the ground about .5 sec. after the first one. First bird killed



Nebraska Pheasants. Good light means good bird detail if you watch the background.

.9 sec. after camera was started—the falling bird was followed for .7 sec., at which time the second bird was picked up (without stopping camera) and killed .9 sec. after it first appeared in the picture. Total length of scene: 2.5 seconds.

Scene 3

The bird was seen sitting on a low log close to the woods. Both bird and shooter in frame. Shooter flushed and killed bird just as it entered cover. Camera going on bird for .5 sec. before it left log. Bird killed .5 sec. after it left log. Total length of scene: one second.

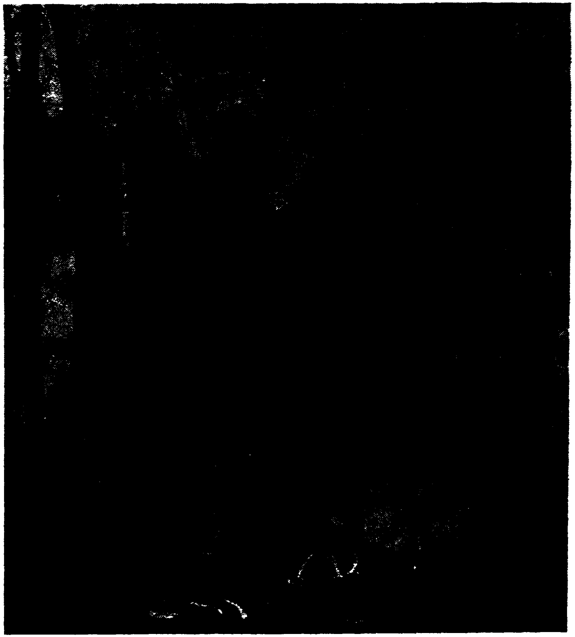
Obviously such short scenes would be of little or no value if photographed at normal camera speed—they'd be on the screen exactly the length of time stated above. The answer is to use slow motion speeds, which in screen effect, extend the viewing time by 2, if you use 32 frames per second, by 4 at 64 f.p.s., and by 8 at 128 f.p.s.

In the shooting of the grouse scenes I used a Bell and Howell super speed camera which is designed to take 128 frames per second. The camera was used as described in Chapter 10 under "Gun Camera Technique." Screen time on the above scenes is: scene 1, 9.6 seconds; scene 2, 20 seconds; scene 3, 8 seconds; projected at 16 f.p.s.

In open fields with the jump shooter on pheasant, the camera problem is somewhat lessened because the average ranges at which these birds are killed is somewhat longer than for grouse or woodcock. This gives both gun and camera more time to swing into action—not more than a second or so, however, even when the bird is flushed at close range, and no time advantage at all if the bird flushes at 25 or 30 yards and flies straight away.

When the general location of a game bird is known, as it is when bird dogs are used, the problem of getting the shooter and bird in frame is a matter of maneuvering after

Tote Road Grouse, Musquacook Lake, Maine. When the light is faint, silhouettes tell the story of a successful hunt.



Duck Shooting, Wild Acres Farm, Arkansas. W. H. Claypool, 1939 duck calling champion, in calling-shooting position. Photography in the flooded woods is difficult because light readings vary from the tops of the trees to the deep shadows in the water.

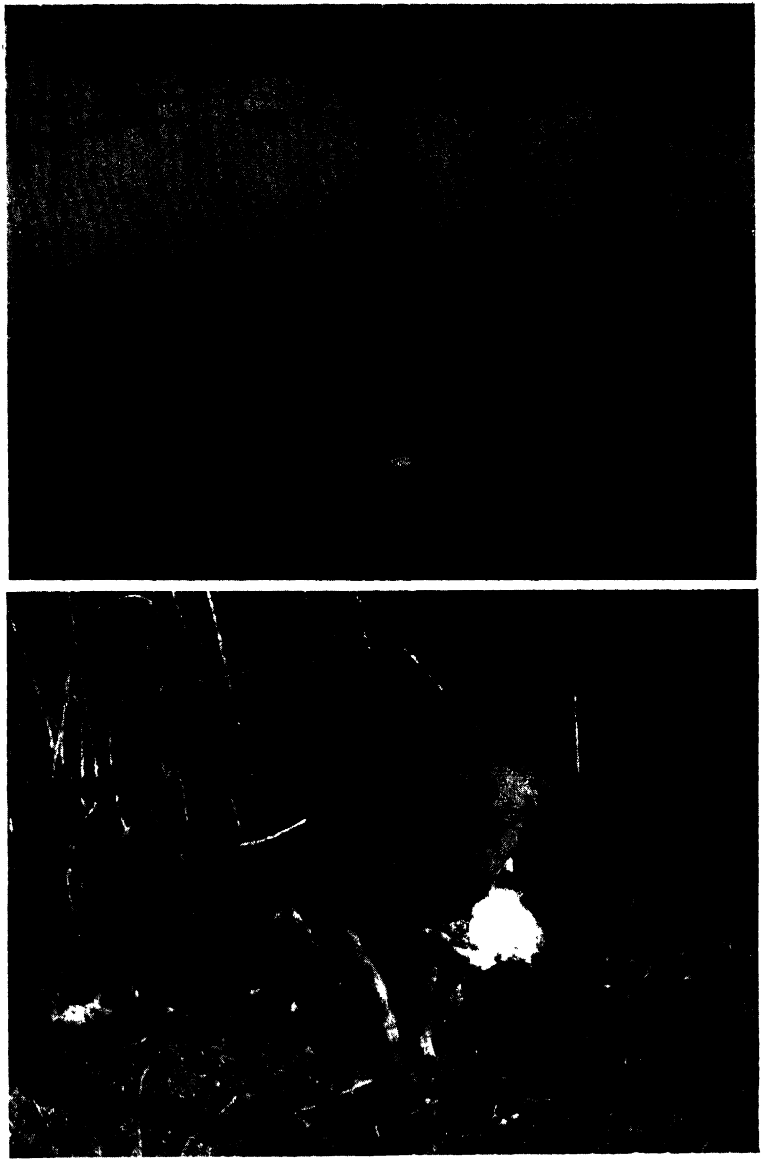
the dog goes on point. The shooter goes in to flush the bird while the cameraman puts the shooter between him and the probable location of the bird. Such a scene will usually include the dog on point, and that makes the perfect frame. But getting the jump shooter and his bird in frame, is luck and patience. Sooner or later a bird will flush from the right spot, or the bird can be seen before it rises.

When making scenes of this kind I maintain a distance of from 7 to 10 yards behind the shooter when using a one inch (16mm) lens. The lens aperture is set at *f*/2.5 which gives good color renderings at 128 f.p.s., and bright sun. Range is set at an estimated 33½ feet. This puts everything in front of me, from 16½ feet to infinity, in sharp focus. I also use a 3 inch (3 power) for a close-up of a kill or two in which case I travel beside the shooter. This lens is also set at *f*/2.5 and 100 feet, giving me a depth of field of 40 yards, or near sharp focus, 20 yards, and far sharp focus, 60 yards—the range within which most birds are killed.

It might be expected that a wide angle lens would aid in the making of these scenes, but a grouse photographed on the wing at a distance of 25 yards with a one inch lens, is a mighty small image on the screen. Therefore using a wide angle (15mm) lens would reduce the screen image of the bird by almost one half again.

So far, we've merely scratched the surface of favorite feathers. There are the pass shooters who station themselves beneath flight routes, taking their birds as they go over; the duck and goose shooters working from blinds with decoys set out; and those who use duck and goose calls to attract the game. Hardiest of the lot are the offshore coot (scoter) shooters who think nothing of being tossed around in a small boat all day.

During moments of leisure, when the season is closed on game birds, many of these shooters take to crow shooting,



Unposed Retrieve. Two pictures tell a better story than one. On this long retrieve of a drake baldpate, there was plenty of time to change range for the close-up below.

which is a no limit shoot, but within the bounds of good sportsmanship because crows are known to destroy more ducks (eggs and ducklings) than all the duck hunters combined. The only drawback to crow shooting is that try as they may, the boys have yet to make the carcass of a crow palatable.

The filming of all these shooting affrays is not as difficult as it might appear. For one thing, the birds scaling in to decoys, or coming to investigate the sound effects produced by the crow, duck, and goose callers, are all visible before they get within gun-camera range. This gives the shooter and the camera handler time to get set for the wing shots.

There are two kinds of days known to duck hunters: "butterfly" days with clear skies and little or no wind—ideal for photography, but the ducks don't do much flying on such days; and windy, dirty days with overcast skies, and plenty of waterfowl on the wing. Flight pictures can be made with color when the skies are grey, but they are little better than black and white. This is a discouraging situation at first glance, but there will be days between these weather limits when, with intermittent sunshine, the camera shooting will be good.

An important thing to watch in the making of any outdoors movie is the light condition. This is of special significance during intermittent sunshine. Scenes that are made hours apart, run together on the screen. When placed next to a scene made with the full light of the sun, a scene made when the sky is slightly overcast, is dull indeed. When the sun enters a cloud, I forget about movie making, and tell my companions so. At the same time I have grown to the habit of judging the speed and size of a cloud moving across the sun. This tells me about how long the dull spell will last. I then watch the woods or marsh for the approaching band of sunshine, and get set for action again.

There are many times when Nature renders the landscape with a fantastic tapestry of clouds, and unusual play of color, without direct sunshine. These scenes express the spirit of the outdoors much better than ones made with a cloudless sky. They show the type of country in which you are hunting, and they do it in a way that catches the most critical eye.

The entire scenic background for the picture, "Leaping Landlocked Salmon," made on Moosehead Lake, Maine, was photographed during dull days when a combination of clouds, mountains, and water, accented the rugged beauty of the lake.

Are all sportsmen, intent on their fishing and hunting, conscious of these scenes? One recently said to me: "Among the many mysteries before me, one is how a photographer sees things. His eye, trained to color and composition, must see far more than meets the eye of the average sportsman."

Chapter 9

SEEING THE UNSEEN THROUGH SLOW MOTION

The old adage about the hand being quicker than the eye, needs no proof. Remarkable though our optic system may be, it fails us when we try to examine fast moving objects —even a hand. Witness, for example, the artist's interpretation of game birds on the wing, made before the coming of the lens and shutter; or the counting of wing beats by stop watch alone. You will see, among other things, black ducks flying on about one half of their actual wing area, and wing beats in error by as high as 300%.

The slow motion camera now exploring the field of bird flight, counts the wing beats, and registers the changing outline of pheasant, grouse, or black duck, with undisputed accuracy. It pictures for us the improved shot string as it leaves the new crimped shot gun shell, and it gives us casting lessons easy to follow. With slow motion film, I settled, to the satisfaction of two noted ornithologists, the age old discussion about the flight of the chimney swift—proving that these birds, even when flying up and down a chimney, beat their wings in unison, and not alternately as supposed.

Slow motion photography is not just a trick to catch the eye; rather, it catches that which the eye cannot see, and by doing so, opens up a new field of photography for the sportsman.

"But," I hear you say, "it burns up the film so fast!"

Gun Camera For Stills. Camera mounted in ¼ in. plywood stock with Eastman table clamp—open sights on top of camera pointed to the center of the picture area.

Gun Camera For Slow Motion. Plywood stock same as used on still camera—sights mounted above view finder on opposite side of camera

How Slow Motion Works

What actually happens when film is exposed at slow motion speed, is that the film goes through the camera faster, but the length of the show per foot of film exposed, does not vary. In other words, 100 feet of 16mm film projected at normal speed, runs for 4.16 minutes, no matter how it was taken.

Suppose you're running your beagles. They've just opened on game and you, with movie camera in hand, have taken up a likely position for the action you hope to get. Suddenly a rabbit jumps from cover, and going full tilt, crosses an open space and disappears. The rabbit was in view for only two seconds, but you were on the alert, got the camera up, and pressed the button. You lost the first second in getting the camera up, so you snared one second of action. At normal speed, you exposed exactly 2/5 of a foot of film. The screening of this scene will run for one second—too blurred, and too short for use.

If your camera had been set on any one of the slow motion speeds, you had a chance at bagging a scene which has delighted more than one audience—just a rabbit running, but seeing it the way the slow motion camera sees it, makes people laugh.

The rabbit episode is typical of the hundreds of second length scenes which scamper before the eyes of the man in the field. Too fast for the normal speed to catch.

It is generally good practice first to photograph a scene in slow motion, then, if the opportunity presents itself, shoot a similar scene at normal speed. Editing will put the normal speed scene in front, and you then have an interesting screen comparison.

On a recent salmon fishing trip in New Brunswick, I was particularly anxious to get slow motion pictures of the spectacular jumps made by the Atlantic salmon after they are

Super speed camera in shooting position.

hooked. To do this, I took up my position on the opposite bank to the angler since the pool was a narrow one. I had already stationed my guide at the head of the pool with another motion picture camera, set at normal speed.

The angler was casting into a run at the head of the pool, and thus, directly toward my guide. The guide's instructions were to start his camera going at the instant of a rise, and keep it going for the jumps.

The first salmon hooked, made three unusually high jumps in succession. Meanwhile I had my super speed camera going on these same jumps. The two cameras on the job produced the perfect sequence: first as the action appeared in regular motion, and then the same jumps as the slow motion camera saw them.

Such scenes are not accidental; they can be planned in advance by observing conditions on the spot. When we arrived at the salmon pool, the guides told us where the salmon were likely to be, and later, pointed out a salmon near a ledge at the head of the pool. We were all set for the action when it happened.

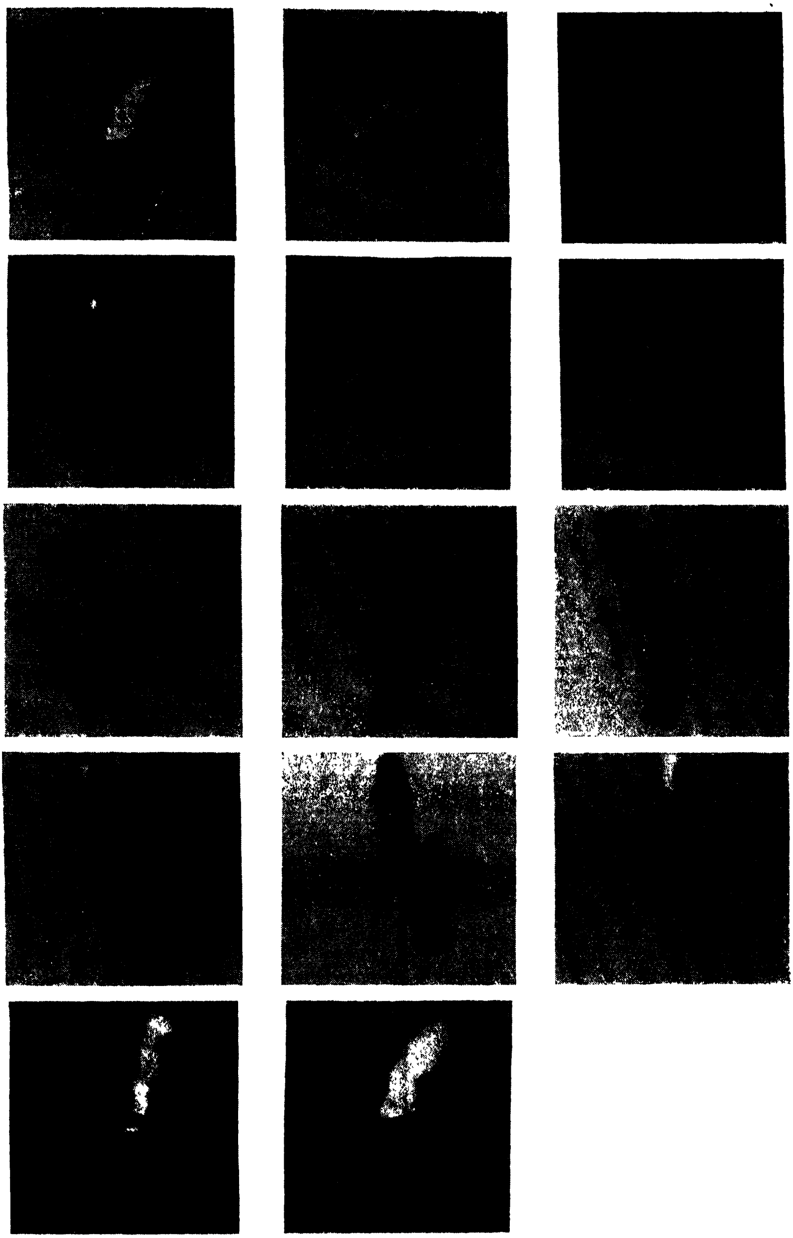
Exposures

Calculating exposures for slow motion speeds is very simple. There are two methods of doing it:

If your exposure meter has a frames-second dial, which most of them do, the *f*/stop setting is shown for all standard camera speeds from 8 f.p.s. to 128. This is the easiest and most direct method.

The second method is based on shutter speeds, given in the camera manufacturer's instruction leaflets. The faster the camera speed, the faster the shutter speed: at 16 f.p.s., the usual shutter speed is 1/30 sec.; at 32—1/60 sec.; 64—1/120 sec.; 128—1/200 sec.

Selection of the slow motion speed depends upon the



Black Duck.

speed of the action before you. If an action cycle takes two seconds, 64 f.p.s. will extend it to 8 seconds—exposing about 3 feet of film.

Use from Planes

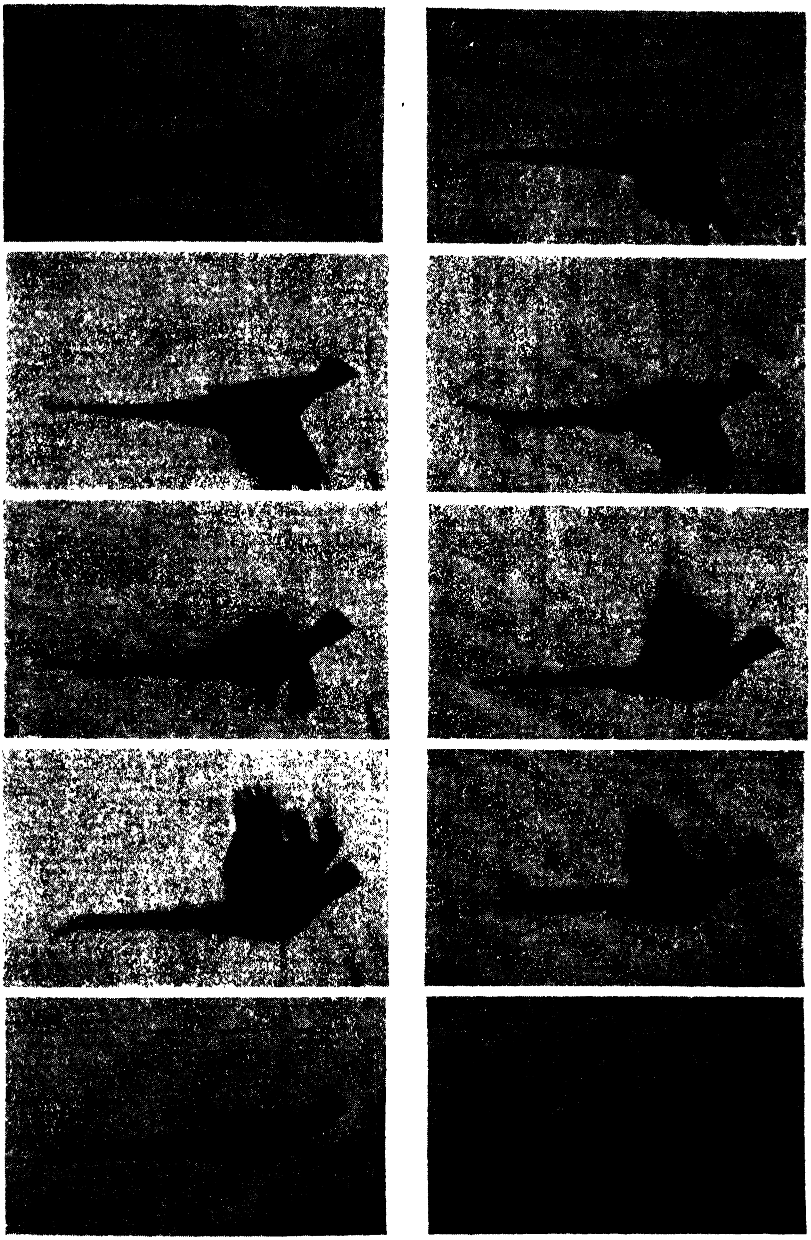
Aside from motion analysis, slow motion speeds have another very practical application. With the slowdown in motion, there is a corresponding ironing out of "dancing movies"—the result of not holding the camera steady or due to plane vibration. When shooting scenes from trains or planes it is always good practice to set the camera at 32 f.p.s. This reduces vibration by 50%, if you are using silent speed on your work.

A few winters ago I was flown into the Maine wilderness in a Piper Cub, with the thermometer at 30 below. My pilot agreed to let down a window for picture taking provided I worked fast. At 3000 feet we had an excellent view of the snow covered forest, with rows of beaver ponds sparkling in the sunshine. In order to reduce the take time on scenes, I set my camera at 64 f.p.s. The scenes were made at 3 to 4 seconds each, and I panned the camera slightly to include more of the landscape.

Fortunately the plane was not heated; otherwise, the draught of sub zero air would have chilled the lenses, and caused lens fog after the window was closed.

Gun Camera Technique

In the taking of the still pictures which made up my book WING SHOTS, I learned that modern cameras were not designed for jump shooting. Looking at a scene through the average view finder, is like looking at a micro film recording of the same scene—everything is reduced to pin point detail. Jump a black duck and just try to find the duck through the view finder!



Pheasant Wing Beat.

Solution to the problem of getting the bird in the picture before it was out of camera range, came by stages, based on shooting experience. The first step was to mount the camera on a gun stock. That served two purposes: it steadied the camera—a must when using telephoto lenses—and it produced a "shooting" feeling. The first stock was short enough to bring the view finder of the camera to my eye, but the flushed birds were again out of range when I found them. Then came the simple answer—a set of open rifle sights, mounted on the top or side of the camera in such a way as to point to the dead center of the picture area. A longer stock was then made to facilitate aiming at arm's length.

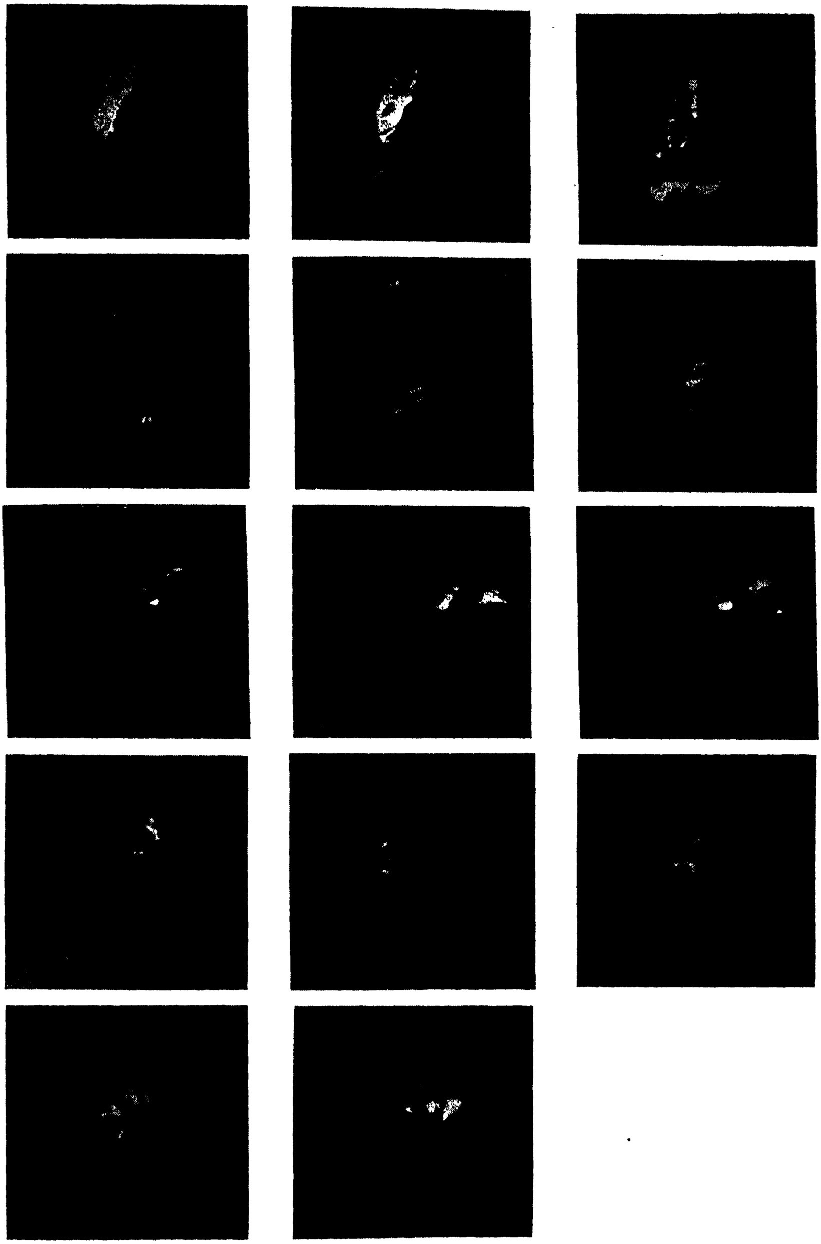
With this holding-aiming device, I have frequently beat shooters to the game by bagging the bird before it was hit. This split second advantage is due in part to the fact that the effective picture "pattern" with a 3 power lens is more than twice as large as a modified choke shot pattern at 30 yards. With slow motion speeds, a half second advantage is all that is needed.

Within the past few years, several elaborate, and very expensive gun cameras have been built for outdoors work, some of them with trigger controls. In all of these, I have found no advantages over the simple arrangement which I have been using for years, and which any sportsman can build to his individual fitting, at modest cost.

Seeing the Unseen—and Timing It

The flight speed of game birds is always under discussion, especially that of the ruffed grouse, which has been rated from 22 m.p.h. to "jet take-off"—whatever that might be. Having hunted these birds for 40 years, I learned early that the grouse, like all other birds, and man as well, employs more than one speed.

The speed at take-off, is entirely dependent upon the



Crow Feathers.

extent to which the grouse is alarmed. In cover which has been shot over, grouse are on the alert and when flushed, leave in a hurry. Under other circumstances, or in cover little gunned, old "shoulder-knot" can take his time.

There are opinions to the effect that one reason why grouse are so hard to hit on the wing is because they can make a split-second change in flight course.

In order to settle some of these discussions, I have made a series of slow motion (128 f.p.s.) studies of grouse on the wing. Timing was done by measuring distances from tree to tree, past which the bird flew, and from the nearest tree, to the spot on the ground from which the bird was flushed. Then, with the processed motion picture before me, it is a simple matter to count the frames, following the grouse from take-off through cover. To simulate average shooting conditions, I used beaters to frighten and flush the birds, and in other cases I was behind a grouse shooter. It all proved by far the most difficult photographic work I had ever tackled.

My first finding accounted for the startling sound effect accompanying the take-off of a grouse, especially if its wings come in contact with small limbs or dry leaves. I found that the stiff, primary flight feathers of the grouse rattle on the twigs at the rate of 14.2 wing beats per second. Little wonder this sudden burst of sound can startle a gunner, and contribute to a clean miss! My timing on woodcock, cock and hen pheasants at the take-off, turned up the interesting fact that they too use 14.2 wing beats per second, with sound effects well known to all gunners.

The myth about fast flying grouse being able to make sudden changes in flight direction, was subsequently exploded when all slow motion shots of birds weaving through cover, revealed long turning arcs. This was to be expected for a fast flying bird as well as for a pursuit plane. What actually happens is that the change in flight course is made at such high speed, that it only *appears* as a sharp turn.

To get at true flight speeds, timing was done during days when there was little or no wind in the cover. Since grouse hunters are primarily interested in what goes on during the first two seconds after a bird is flushed, it was necessary to have the camera going on the bird *before* it left the ground.

I was fortunate in having both shooter and bird in frame for this kind of shot. At the powder flash, this bird had flown from a standing position on a small log on the ground, 30 feet in the first 1/2 second—an average speed of 40.9 m.p.h. During its flight, the bird reached an elevation of about 4 feet.

Timing on another grouse through cover started about one second after the bird was flushed. Careful measurements made in this woods after the processed film had been viewed, showed that the grouse, after climbing over a trash heap in the foreground, had attained the amazing speed of 89 feet per second, or 60 miles per hour.

By combining these speeds, we have the facts about what goes on after a grouse—an alarmed grouse—leaves the ground. Such extraordinary acceleration and speed is the reason why a grouse flying through cover, presents such a tough target for gun and camera.

While on the subject of grouse and guns, further slow motion studies were made to determine just how long it takes an experienced shooter to swing into action. This was done by having the shooter before me in the woods. At the call of mark left, right, front, left rear, etc., the camera was started. The gunner never knew which call to expect, nor when the call would be made. This simulated jump shooting.

Of course timings on gun handling varied with the call, but showed that once the message to the ear had been translated to action, a fast shooter required 1/2 to 3/4 sec. to mount his gun and point it in the direction called.

The timing story thus revealed by slow motion photography cancels guesswork—a grouse is capable of flying 50 yards during the first two seconds of flight; or given a handicap of 15 yards, can be 35 yards from the gunner in one second. Add the timing of gun handling to these figures and you have the reason why old ruffle neck is not an easy target.

Lessons in Still Photography from Slow Motion Movies

Frame by frame studies of jumping fish or game birds on the wing tell us why still pictures of these subjects are so hard to get. Results can be downright discouraging. When one knows what goes on in the air, the odds against getting good shots at every click of the camera become apparent. This knowledge in no way lessens the problem—it simply says that you're lucky if you get a printable picture out of a dozen or even a hundred tries.

Let's take a look at a towering black duck—towering from the camera—as the super speed camera saw it. The 14 pictures reproduced from consecutive frames of 16mm kodachrome are for one wing beat. In examining these reproductions it must be noted each frame was exposed at 1/200 sec.—not fast enough to arrest wing action, and greatly enlarged. The sportsman with a still camera would be using 1/500 to 1/1000 sec. and getting vastly better definition.

Frame counting tells us that this duck was using 9 plus, wing beats per second. In other words these 14 stills were made in about 1/9 sec. Of the lot, frames 8 to 12 are the best for a still picture. The wing positioning in these frames occurred 9 times every second. What are the chances of hitting them with a single exposure? Your guess.

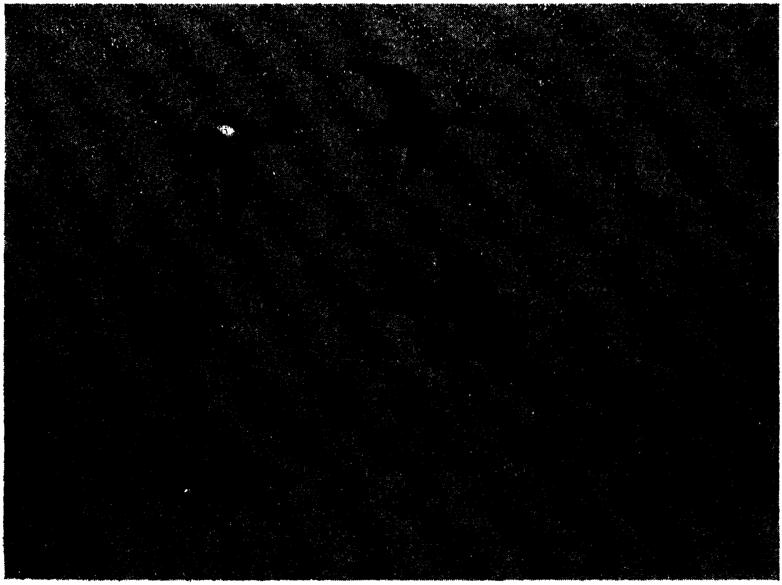
Action shots of a bunch of ducks is another matter—the wings will be in a variety of positions. Grouping of the ducks is the thing to watch for. Here the photographer watches his birds as they swing by—they will bunch up and swing apart—press the button when you see them together.

Geese preparing to land are somewhat easier on the film supply. In round figures the landing wing beat (blue geese) is 5 per second. While the chances of making good stills have increased, the photographer can still draw a blank with nothing but an incongruous bunch of goose feathers showing.

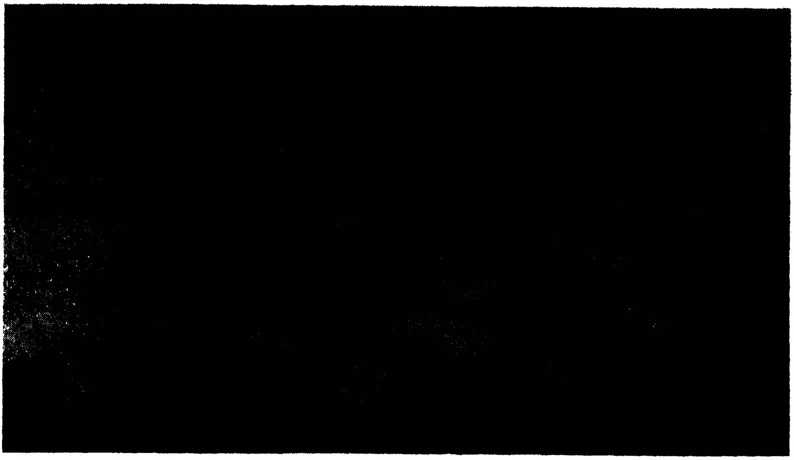
Crow Feathers

The camera was going on the crow for a fraction of a second before it was killed. Duration of the action selected for reproduction was 1/5 sec. (every other frame for 28 frames.) During that time the crow is seen in the clear, there is the impact of the shot as the left wing crumples, shot carries feathers away from bird, momentum of bird carries it on while feathers hang in the air, the bird rolls over and begins to fall. If you want a really spectacular still of a hit, you'll find it in frames 5 and 6. From there on the bird tumbles to the ground. Meaningless stills of this latter action are often simulated by simply tossing dead birds into the air. Connecting with the split second action revealed in this series is a matter of having enough targets in the air for a string of tries, plus a shooter who knows how to roll 'em.

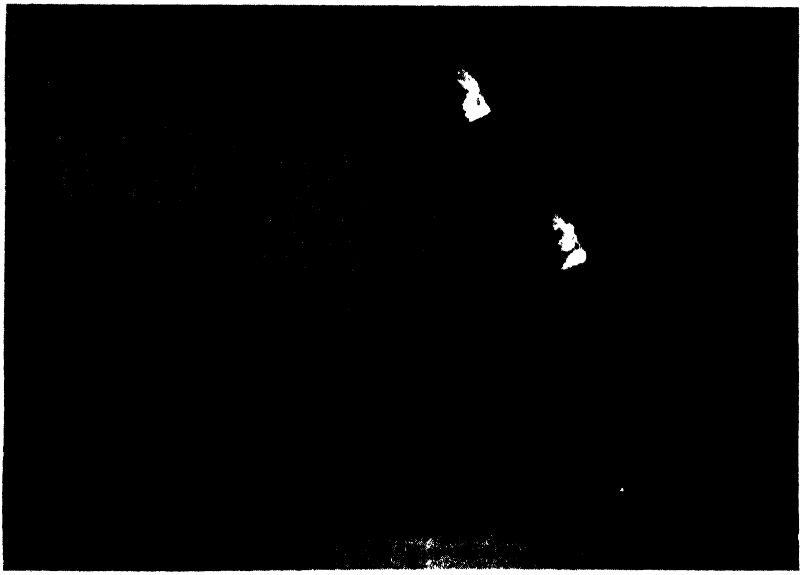
Birds on the wing offer a fellow at least one advantage: he can see the approaching target and get set for the action. But fish don't say where they're coming up. True, they can be made to jump close to the boat, when, by keeping his eye on the line, the cameraman knows about where the fish will jump. As a general rule, however, game fishes make their most spectacular jumps shortly after they are hooked; and that means plenty of line off the reel. By the time a fish is played and brought to boat, the jumps are over. But don't be fooled. I recall hooking a 24-inch landlocked salmon in



Canada geese above, Widgeon below.



Flight Patterns. The man with his brush can place his waterfowl for composition, but the fellow with a camera must trust to patience, luck, and quick judgment of distance when a fast moving bunch swings by at camera range. Red-breasted Mergansers above, Black Ducks below.



Springing Black Ducks (from Wing Shots). The early morning light stressed the white under wing coverts—the chances of getting two ducks in almost identical wing position is one in a . . . . .

Moosehead Lake, Maine. When I was sure I had the fish on, I handed the fly rod to the guide with instructions to play it to the boat. This salmon was brought to within 12 feet of the boat when the guide remarked, "Don't believe there's a jump in the lad." At that instant the salmon jumped three times in rapid succession. Fortunately I had my eye on the line and had been changing range settings as the salmon came in.

In 3/4 sec. (slow motion timing) a smallmouth bass can make a high jump and flex its body, nose to tail, six times before slapping the water on the return trip. High jumping Atlantic salmon on the Serpentine River, N.B., took a mite longer, but not so you'd notice it for picture taking purposes—timing on 3 high jumps, 4/5 of a second.

From this series of timings on fish and waterfowl, the important points to remember are:

1) Be prepared to waste plenty of film.
2) Get set for the shots with camera to eye.
3) Calculate ranges by keeping your eye on the bird or watching the angle at which the fishing line enters the water—when the line points down the fish is close to the boat.
4) Knowing what goes on, and the extent of the action, will give you added confidence and the patience to keep on trying.

Chapter 10

EDITING

I cannot urge too strongly that all films be processed as soon as possible after they are exposed. Then comes the thrilling shiver of the first peek at stills and movies. After the first viewing, interest somehow begins to wane; the job of editing looks long and tedious and there are other things to do after a vacation. If you feel that way about it, don't toss the films in any old place. Store them according to instructions. Not in the attic—it can get hot up there; not in the basement—moisture; never close to hot pipes and radiators; and by all means, never exposed to light—dyes in color film are not light fast. A cool, dry place is best for storage. Placing films in metal boxes will keep out light and dust.

Motion Picture Editing

There is no better time for editing than immediately after the processed film is in your hands. At that time every detail of the outing is fresh in your memory. I make it a practice to project original film privately, with field notes, scenario outline, and scene by scene records of every roll before me. On "view sheets" (blank paper), I jot down the roll number at the top and the number of scenes the roll contains—a line for comment on every scene. Cutting begins right then with selection of the best duplicated scenes, and deletion of defective ones and those not related to the story in hand. Stopping the projector at times allows me to fill scene comments with reference to exposure and action.

With this information before me, I am ready for the next editing step: a scene by scene plan which fits the scenario idea. "View sheets" are then renumbered with red pencil for editing sequence. The opening scene may be reel #1, scene #1, or it can be reel #7, scene #5, depending upon when the scenes were photographed. All scenes running together in proper sequence are bracketed with a single splicing (red) number and deleted scenes marked "X."

The film is then ready for cutting and splicing. Last year's empty reels now have a use: as each scene is scissored out, it is wound on an empty 50 or 100 ft. reel and marked with its splicing sequence number.

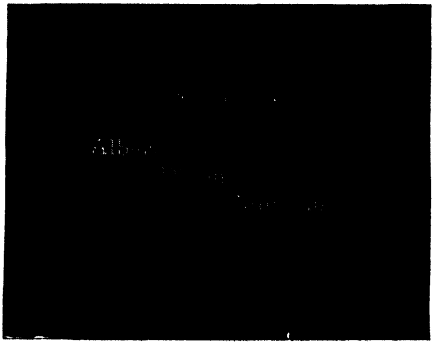
There are many types of splicers on the market—from cheap "mouse traps" to those of professional precision. Good splicing requires sturdy machines, built to close tolerances. The detailed instructions which accompany every splicing device should be read and carefully followed. It is most important that you use fresh film cement. Most splicing failures can be traced to the use of film cement which has deteriorated with age. A few cents spent on a fresh bottle will save you the discomfort of having a splice let go in the middle of a showing.

Close editing gives the professional touch to all movies. By this I mean the care with which scenes are spliced together. When the spring of a motion picture camera runs down, you are liable to have a light frame (over exposed color) between scenes. A single light frame projects a disturbing light flash on the screen. Because there are no light frames between scenes, never assume that a splice will not be needed. At the beginning and end of every scene the starting button is pressed and released. In the excitement of action there is always a temptation to stab the button. When you do this, the camera is moved during exposure with the result that the first few frames are fuzzy. Close editing cuts out the light and fuzzy frames between scenes. Light scenes are easy to see; an eight power magnifying glass spots the others.

If you act as commentator with your film showings, main and end titles are all you need. Camp and other signs photo-

Title Designs. Kodachrome color print used as background —title printed in white on sheet of clear plastic and placed over the color print.

Art board background—printed title with bait cemented to board.



Water color side panels—printed title on black board was interchangeable. Prints made on Revere Diaversal paper from 16mm kodachrome film.

graphed during the trip tell where you were. Titles of professional quality require art work of the highest order. Fades and lap dissolves as you see them at your neighborhood theatre, are made by professionals who do little else. Lap dissolves (superimposed titles and scenes) are made with cameras equipped for back winding of film for double exposure. Closing the lens aperture on any motion picture camera will make a fade-out scene; opening to correct *f*/exposure setting, produces a fade-in.

Apparatus for home titling is easy to use and titles of the highest professional quality can be made with such equipment. But like advertising space, the effectiveness of the title board depends upon your ability to fill it. Sloppy titles are worse than none at all.

At moderate cost, Bell & Howell, Eastman Kodak, and many others, will make attractive titles on 16mm film. Black and white titles are the least expensive, but are not recommended for titling color film because the jump from color to black and white is not pleasing; and more important, the difference in thickness between black and white and color film is enough to throw one or the other out of focus. This means refocusing the projector for every title and the scene following it.

A silent picture needs descriptive titling throughout. Keep them as brief and meaningful as possible—ten words is the recommended limit. Single words like, STRIKE, TALLYHO, MARK, prepare the audience for the action following such titles. A picture showing a limit catch of 15 largemouth bass (1949 limit) in Louisiana would be labeled "gamehog" if shown in Michigan where the limit is 5. A title reading, "Louisiana limit: 15 bass per day per angler," saves an argument.

Valuable pictures which are to be shown many times, should be duplicated. The greatest care in the world will not prevent scratching; and every time a color film is projected, it loses some of its color. Although not noticeable at the beginning, the loss is cumulative. Once damaged, an original picture is gone for good, while a duplicate or parts of it can always be replaced with a fresh copy from the original.

Slide Editing

This is such a simple job that it scarcely needs mention. Yet, like many things easy to do, slides often remain in their original boxes, unweeded and unarranged.

The first step is to buy or make a storage box with numbered slots for the 2 x 2 slides. The arranging of slides in good story telling sequence is just as important as the editing of a motion picture, and editing follows the same pattern: eliminate duplicate scenes, poor exposures, and those not related to the story to be told.

After the selection is made and the sequence decided, number each slide in sequence, placing the number in the lower left hand corner and *upside down*. Now put the slides in their respective slots upside down—the way they are placed in the projector. The numbers are now right side up and serve two purposes: keeping slides in correct sequence; acting as "thumb marks" for positioning slides in the projector slide carrier.

Storage rules for motion picture film apply to slides in the same way. Dust slides with a camel's hair brush before showing and handle by the edges only.

Black and White Negatives

Flat storage for all negatives is the rule. Special envelopes for this purpose are on sale at all photographic stores. Some films are cut and returned flat after processing, but 35mm film is usually returned in roll form. Cut the 35mm negatives into strips containing 4 or more exposures, depending on the size envelopes purchased. Place the envelopes with negatives between the pages of a book for a few days and they will stay flat for storage elsewhere. Storage of 35mm negatives in roll form is not recommended because rolling and unrolling causes scratches and abrasions known as "cinch marks."

Date and mark every envelope according to trip or subject matter and file for easy reference.

Chapter 11

JUNGLE PALAVER

The soggy Cameroun jungle of West Africa set a new high on camera problems as well as new and itching lessons on insect propensities. Ebolowa, 100 miles inland and 2½° north of the equator, was the collecting center for the Cleveland Zoo African Expedition because the surrounding forest is the home of the gorilla, chimpanzee, numerous species of monkeys and snakes, and rich in bird life. Of these, gorillas headed the list of collector's items.

The primitive forest is covered by trees standing close together which causes them to grow tall and straight—often 100 ft. or more to the first branches. These trees in turn support huge masses of creepers. The struggle for existence among trees and vines is a struggle for light—the ones that hoist their leaves and blossoms the highest win. Where the banks of streams are solid rather than soft and boggy, the trees grow far out over the water. Thus the smaller streams flow through mere tunnels in the forest and, when not too deep, provide ready made trails much easier for travel than cutting through vines. Beneath the solid canopy of foliage is the land of perpetual twilight and high relative humidity which makes it feel much hotter than it really is—the water in small streams registered 70°F, the surrounding air 73°F. Lack of light, moisture, and dense foliage combined to make all sorts of nasty camera problems.

On the ground lived hordes of driver ants through which one must run then strip and pick 'em off; and in the trees small stinging ants knew how to make people itching mad, and were forever exploring pack sacks and camera cases. There were chicoes: fleas that burrow under toe nails and there lay their eggs; but very few mosquitoes.

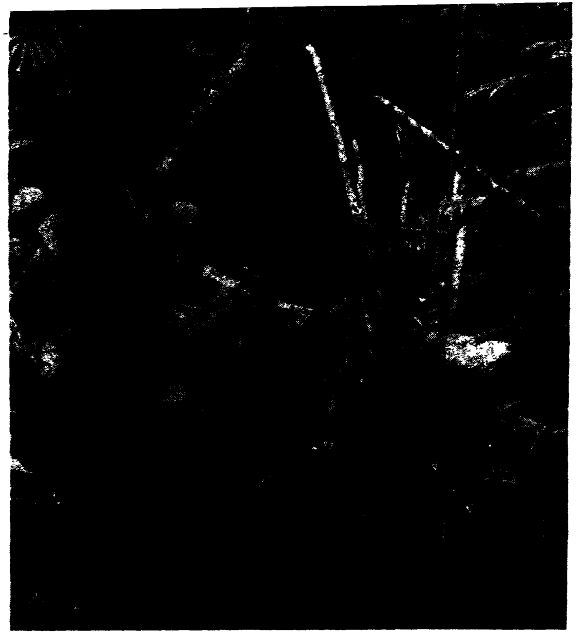
Fauna and Francs

On the return flight from Africa our cargo plane carried more than 100 live animals: gorillas, chimps, monkeys, porcupines, leopard, cheetah, civet cats, birds, and vipers. Collecting in the Cameroun jungle is the work of hundreds of expert hunters with trap lines covering thousands of square miles. The collector's first move is to let it be known that he is a sucker in francs for live and unblemished animals. Ordinarily these animals would go straight to the Bulu pot or, if the twinge of hunger was not too pronounced, his pickaninnies got a new pet. As a matter of fact many of the animals brought in were pets.

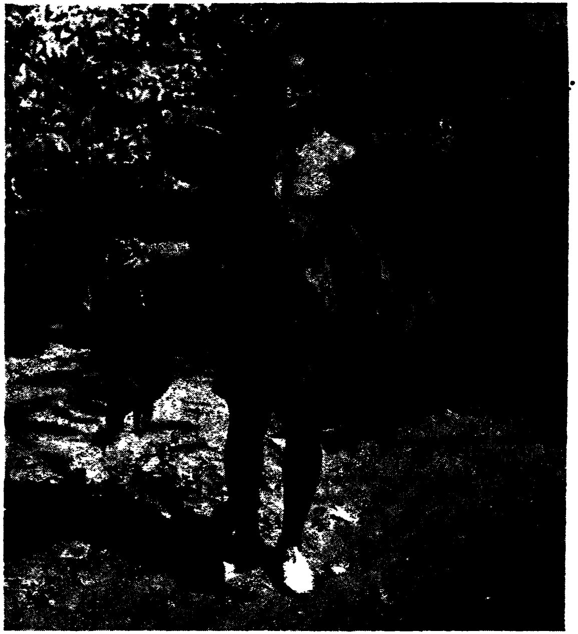
This natural course of events posed unforeseen picture making plans. Animals were coming in from all points of the compass; there was no guessing where and when a hunter's trap closed on game. The collection of tame animals on hand was a temptation: why not plant them in the jungle and there re-enact capture scenes replete with adventure, thrills, and close-ups? There was but one honest solution: picture the animals as I first saw them in the hands or wicker baskets of their captors, then "go for bush" the Bulu way.

Language Barrier—a Challenge

This part of the forest is inhabited by the resourceful Bulu who hunts with spear, crossbow and poisoned arrows; his pits (without stakes), snares and deadfalls are the work of the master bushman; and his squeaks, grunts, and whistles deadly on monkey, antelope, and even forest hogs. Ex-



Monkey Snare. Sloping pole over boy's head leads monkeys from the bush to snare set on log with spring pole. A blue plantain-eater ran into this one.



Bulu Retriever. The blue plantain-eater is the principal game bird of the Cameroun forest. They run like monkeys along the branches of the trees—rarely on the ground—are out of sight an instant after they take off. Average weight, 2 lbs. 4 oz.; length 30½ in.

cepting his do-all-machette, all his hunting equipment is fashioned from jungle trees and vines.

The Bulus, like other African natives, like the friendship of sportsmen, especially if they are given a share of the game bag. It was easy to satisfy them in this respect as their favorite game, and the most plentiful, is the monkey which they described as "good black man beef." It was quite a challenge tramping the jungle day after day without an interpreter, and employing new guides at each village so I could see and photograph as much of the bush as possible.

My guide was always a hunter who knew the surrounding bush. With him were two extra boys toting cameras, guns, and machettes. The language barrier was eased by the common knowledge that hunters with guns or cameras ought to travel in silence. There was no running chatter—it wasn't necessary. I soon picked up the Bulu signal "s-s-s-h," meaning game was seen or heard and later, the Bulu names of many birds and animals I was seeking. A great many of these have a Bulu name, a scientific name, but no English name. Once I had the Bulu name for a bird or animal, Bate's "Handbook of Bulu" identified the species. It should be mentioned that the Bulu hunters and children too, know a great deal more about their bush than many experienced guides I've employed elsewhere. A hornbill is not just another hornbill but a *miam, ongung,* or *ganga-miam,* meaning a particular species of hornbill—the stinging ant, *fom;* driver ants, *suluk.*

When I first entered the jungle there was no Bulu word for photograph but before I left, "foto" was in common use in the best of palaver circles. The word started on its way to the Bulu language the moment I made my first Land camera—picture a minute—portrait of a Bulu guide. When I handed him his picture there was utter silence for fully ten seconds during which time I saw him slyly drop his eyes from the picture to his loincloth drapery, but the hunter's keen eye could detect no fakery. The silence was broken by a shrill call which must have meant magic because it brought the whole village running to the spot. I had odd thoughts at the moment about being crowned king or staked out to driver ants—a well known torture trick in those parts—but the palaver ended in an uproar of laughter. From that day on, news of the magic preceded me in the jungle where I was greeted with cries of "foto!" One man sent for his wife—probably his favorite one—to pose with him for a picture. She was more than 50 miles away at the time but she walked, and what's more, brought him a basket of food on her head.

One missionary suggested that my picture taking activities had rated a drum name and so the black man's morse code spread the news from village to village. The whole experience goes to show that people the world over react the same to pictures. This camera created a spirit of cooperation and friendship in the bush which might otherwise have been hard to get. Above all, in making the Bulu camera conscious I had gained an understanding beyond words.

Forest Sights and Sounds

The jungle is not the happy hunting ground of the open velt or savanna where herds of animals are spotted and stalked from afar. It is not the home of the zebra, giraffe, lion, rhino and many other trophy makers. There are elephants, quite plentiful in some places, and bunches of buffalo; cats—cheetah, leopard, civet and others—secretive and rare. A systematic search for any of these would have meant long and time consuming safaris with the excellent chance of seeing nothing, because the jungle hides all. As it was I spent more than 40 days slithering over primitive back roads and on foot for unmeasured jungle miles. I saw one elephant, or rather all I could see of an elephant at only 30 feet—less than a square yard of its hide—and followed it for a day and a half without another glimpse. The animal left 15″ footprints—sufficient proof that even at close range large animals were difficult to see, let alone photograph in the dense jungle.

I saw a number of large snakes—one a 7 ft. mamba, allied to the cobras, extremely fast and dangerous. We heard and stalked a gorilla family without success; listened to "chimp talk;" and on many occasions saw the seedling underbrush sway as something rushed away. It was a silent, windless place except for the loud "wush, wush" wing sound of hornbills as they took off high above our heads. Through the mist the prolonged "ka-o-o-o" of the blue plantain-eater sounded like a foghorn. Once in a while the damp stillness was blasted by the fall of a dead giant of the woods carrying with him the vines and parasites that had used him as a jungle ladder to sunshine.

There were streams to cross by wading, dugout, raft or fallen trees; snares, pits and deadfalls were visited in remote parts of the jungle. Hornbills, large fruit bats, plantain-eaters, grey parrots and many other birds were stalked, and their flight patterns recorded by ultra slow motion camera. There was never a dull moment but plenty of wet ones.

Solving Moisture Problems

The jungle was at its wettest best during May and June —it was the rainy season. Every day and every night the forest was deluged by concentrated showers of short duration. When caught out in the jungle with little sky view, the only warning of a downpour was the distant roll of raindrops on leaves. In a matter of minutes all was dripping wet.

Except the camera carried for instant use, all other photographic equipment was wrapped in at least two layers of

Guide on Noun River Marshes. Like most African men, he wears his hunting clothes until they are ready to fall off Though tattered, he is proud and self-reliant.

Gorilla Sitter. When taken from the jungle, young gorillas are cared for like children—native girls feed them, and sometimes sleep with them.

waterproof plastic—the kind used by the armed forces for carrying pistols and personal effects—and carried in small pack sacks. I also carried a gum rubber bag large enough to hold all the pack sacks. At the first sound of rain everything was stowed in the rubber bag which was string tied and upended against a tree.

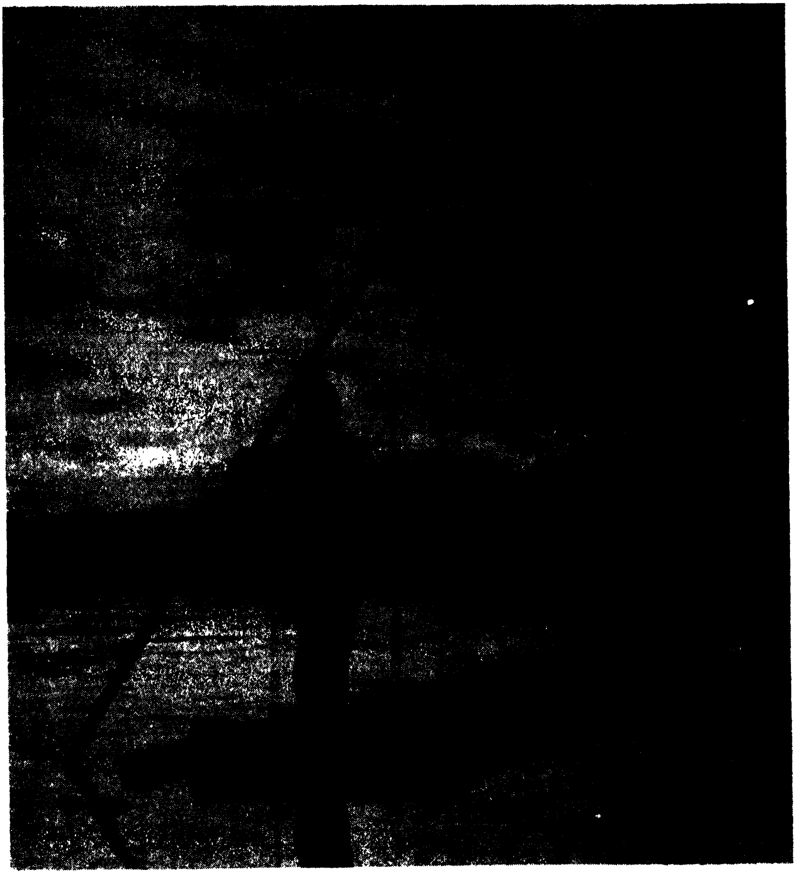
Further preparation for the battle with moisture included several perforated tins of silica gel—a form of colloidal silica which is extremely absorbent—now used to keep salt dry, cookies crisp, and highly recommended as a moisture absorbent in camera cases and film storage boxes. In their commercial form the crystals are blue, turning pink after they have absorbed a certain amount of moisture. Baking them in a warm oven for 2 or 3 hours dehydrates them and they turn blue again. Excessive moisture in the jungle turned the crystals pink in a matter of hours which meant working the cook stove over time every night. From my observations, silica gel is most effective when used in tightly sealed cases the contents of which are reasonably moisture free to start with.

As an extra precaution I built a tight box 3 feet square and hung a 40 W bulb in it. All cameras, binoculars, and plastic bags were placed in the box over night with lenses removed and bags turned inside out. By leaving the door slightly ajar, temperature was held below 80°F. With the bulb burning night and day a box of this kind is bound to be dry and retards the growth of fungi on lenses.

Standard packaging of 16mm movie film and 35mm for still cameras is moisture tight and therefore needed no special attention beyond storing in the coolest possible place. After exposure, all tins of motion picture film were re-taped and shipped to the U.S. for immediate processing. Deterioration of film is much greater after than before the film is exposed—the quicker it is processed the better the results.

Light Problems

There were two major light problems in the jungle: grey skies of the rainy season and poor light within the jungle. Anyone who has tried for color flight pictures of birds against a grey sky knows how discouraging the results can be. There is not only lack of color, but the abundance of diffused light entering the lens destroys detail. In a single scene for example, a flock of grey parrots on the wing appears completely



Unsinkable Bamboo Canoe on Noun River Marshes. Catfish was his principal game—village in background.

out of focus as it passes across grey sky, but when it swings into a patch of blue the birds are in sharp focus with red tails sparkling. There were so few patches of blue sky that flight shots—with the sun on the subjects—were made with the birds flying against foliage. In one respect such scenes are more satisfactory than having the birds against a clear blue sky—a stationary background accents the forward motion of flight.

Early morning and late afternoon are the ideal times for bird flight pictures because the low angle of the sun illuminates their underparts. High jungle trees—checked by distance meter at 150 to 180 ft.—shut out this light at all times. Shooting straight up during the noon hours meant shooting too close to the sun for perfect results—the birds were merely in silhouette. Best results were taken along jungle roads or clearings where my boys could circle the game and flush it in my direction.

Grey skies and high timber are not exclusive jungle light problems: there are higher trees elsewhere; waterfowl coast through the pin oaks of Arkansas; and the fowler's eye regards the grey skies of dirty weather as an omen to a day's limit. All these are monstrous plagues to the fellow with a camera. He is at the mercy of light and background as well as range (the gunner's only problem).

Within the deepest part of the jungle where twilight ruled, the light problem in terms of meter readings for color was *f*/1 at 24 f.p.s. (sound speed or 1/45 sec. shutter speed). Dropping to 8 f.p.s. or 1/20 sec. shutter speed, gave me a lens aperture of *f*/1.5. On account of the "hurry up" effect when projected, action could not be included in such scenes. Jungle travel scenes were made under other light conditions: spots where there was sunshine, like crossing large streams, or where Bulu women were carving out a jungle garden. Here, exposures were made for the spot of sunlight with due consideration to dark skinned subjects.

There were many places in the jungle where light filtered through the foliage creating the varying planes of soft light so desirable in the making of low key renderings. These are the scenes that suggest action rather than detail. They have been entirely too long in finding their way to the motion picture screen in view of the fact that the technique of painting in low key is centuries old. Travel scenes made by the shades and shadows of subtle light, or guides cutting their way with vines and bodies silhouetted against the dim light of a jungle river, have action plus atmosphere.

And Other Problems

Unforeseen troubles arrived during the first few days in the jungle. The first one: film sticking in the gates of motion picture cameras. This can be the result of inaccurate threading but when it happened in three cameras and the threading was found correct, the finger pointed to moisture again. Opening the cameras—the only solution to faulty threading—cost me a few feet of light struck film. Thereafter, with starter button pushed down, and lens removed, a *slight* finger tip downward pressure on the shutter started the mechanism with the loss of only a few frames. After the "bulb oven" was put into operation this trouble disappeared. It was probably caused by moisture plus gate pressure when the cameras were not in operation for several hours.

For tropical work with 35mm still cameras I most certainly recommend the use of 20 exposure rolls. Moisture expands 36 exposure rolls to a point where having exposed the roll, rewinding back to the safety cartridge takes enough pressure to damage both camera and film. A photographer in the Cameroun who loads his own told me he has avoided this trouble by loading to 25 exposures. I got around it by cutting off 1½ ft. at the beginning of each 36 exp. roll. The start of the chopped off piece was used as a template to shape and trim the film in the cartridge for loading.

During the expedition I was commissioned to supply the Cleveland Press with art work supporting progress reports. Developing apparatus included a tank for daylight use, thermometer, clips for hanging film to dry, a viscose sponge, hypo fix, and a supply of Harvey's "777" developer and replenisher in dry form. The developer was selected because of its fine grain results and the manufacturer's claim that it could be used at temperatures up to 90°F. Chemicals were mixed with boiled and filtered rain water and films developed at 75°F.—camp temperature in the early morning hours. Negatives with Joe Collier's "Jungle Jaunt" pieces kept the folks back home well informed—on the spot processing told me how my black and white exposures were running.

Equipment

In the event of loss or damage to equipment on the long flight to Africa and back—15,000 miles—spares were more important than excess baggage calculations. There was no possible way of getting replacements to the jungle on our time schedule when air mail letters were weeks reaching home. Before taking off, all foreign made equipment was registered with U.S. customs thus assuring re-entry without duty.

Still Cameras—2 Leicas—one with synchronized flash; 1 Land camera. *Lenses*—35mm, 3.5; 50mm, 3.5; 73mm, 1.9; 135mm, 4.5.

Motion Picture Cameras—16mm—1 Bolex and 1 B&H (both with turrets); 1 B&H super speed (128 f.p.s.). *Lenses*—15mm, 2.5; 1″, 1.5; 1″, 1.9; 35mm, 1.3; 3″, 2.5; 3½″, 1.3. Two type "C" adapters made all Leica lenses available for motion picture work. The two extremely fast (*f*/1.3) cinebalowstar lenses were selected for use under poor light conditions. Both lenses have extraordinary resolving power when used wide open. Off hand, the difference in lens speeds of 1.9, 1.5, and 1.3 seems trivial. Actually the 1.3 lens is 114% faster than the 1.9, and 33% faster than the 1.5. The balowstar lenses were also used on the super speed camera because its high shutter speed of 1/200 sec. requires fast lenses even in good light.

Side Trip

Africa is full of side trips and game as you like it. Antoine Alexandrakis, an ardent duck hunter of Yaounde, the capital of the Cameroun, has made most of them. His choice is the Noun River marshes, 280 miles to the north of his home, and he was looking for company.

One hundred or so miles north of Yaounde the jungle runs out. It is not a gradual end from high trees to lower ones; it's as sudden as if a landscaper had drawn his plans to end the forest on a line. On that line the savanna begins. This particular part of the African savanna is one of the richest agricultural districts of the Cameroun and is settled accordingly—meaning no big game around. But travel north was toward the less settled Santa Mountains and the fabulous marshes finally reached at an altitude of 5,500 feet.

It's one thing to wade into a marsh and call the ducks by their first names; it's another to see bunches of geese and ducks for the first time as they pitch through the blue of distant peaks to land in a solid foreground of large white water lilies in full bloom—and not be able to name one of them, well, not until a Bulu boy gave the key word and the thumbed handbook turned up: spur-winged and Egyptian geese, African black ducks, white-faced ducks and teal;

and such oddities as lily-trotters with long thin toes for doing what their name suggests, ibis, crowned cranes, and vulturine sea-eagles.

This is the sort of setting in which a photographer should spend a month or more working from blinds or nosing around by canoe. Three days was enough for a most successful shoot but it is difficult to get good picture coverage on waterfowl in such a short time. Still pictures of ducks or geese in the air are the result of dozens of tries and endless patience while slow motion flight studies are almost sure fire. As it turned out, I bagged the first slow motion flight pictures ever made of these exotic waterfowl and their bog trotting neighbors. These together with shooting scenes, background, native color, and savanna travel made a complete motion picture of the trip. Black and white and color stills were made all along the way with special emphasis on the marsh and an open market where, lacking outside customers, natives foregathered from the hills to trade and fraternize with each other.

When the chance for pictures is a once in a lifetime affair, as this side trip might well be, make every shot count and don't spare the film—the trail may never point that way again.

Chapter 12

STRAY SHOTS FOR ALL

Every time a sportsman or sportswoman steps into the field, he or she is a walking advertisement for the sporting goods industry from shoes to hat, pocket contents, and heavy equipment. When an industry grows to the billion dollar class, as this one has, it supports through advertising, all kinds of trade publications. Sportsmen's magazines, catalogues, and trade releases use untold numbers of photographs.

The sale of a print here and there is like having the cost of a fishing license refunded. But there is nothing to prevent your going after the big prizes, like camp bills or outboard motors, except your ability to see and photograph interesting subjects in an interesting way. Scanning the pages of magazines and catalogues is your best cue to the editorial viewpoint. Posed pictures of people are not on the preferred list, although a record breaking fish is an editorial prize no matter how shown. Lots of pictures are posed but they always have a semblance of action obtained by having the subject doing something. Catalogues use single prints of subjects; magazines want them in story telling sequences with plenty of human interest. Single prints of jumping fish and game birds on the wing are always in demand by magazines because they can be used with a great variety of stories. In all pictures submitted of rod and gun handling, action in boats and canoes, or the use of axes and hunting knives, be sure they follow the rules of safety and good technique.

Good detail on glossy prints, 5 x 7 or larger, is required by all publications. Magazines are seasonal in their make-up and are not inclined to accept out-of-season material. When you have hunting or fishing pictures for sale, send them to the editors a few months before the season opens. When the snow is on the ground, they are planning for the opening of the fishing season and buying their illustrations accordingly. Information accompanying every photograph will include the photographers name and address, printed or stamped on the back; when and where the picture was made; the names of people appearing in it; and a detailed description of equipment and other points of interest. When there is any question about permission to publish photographs of people, get releases—this may save you a lawsuit.

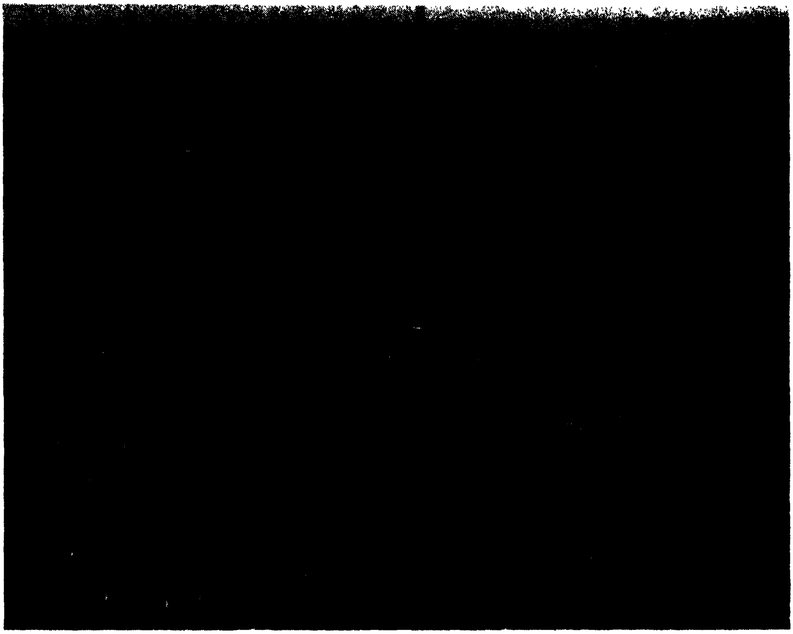
Aerial Photography

Every flying sportsman should be familiar with the simple rules for the making of pictures from planes. The use of slow motion speeds for aerial movies has been mentioned in Chapter 9. The following pointers apply to both movies and stills:

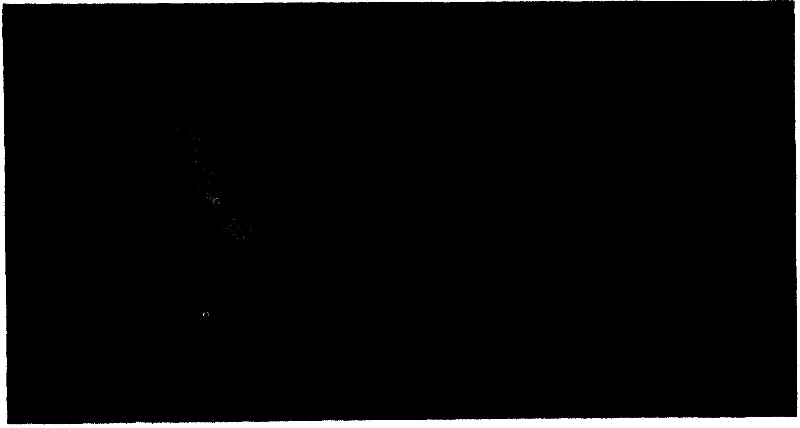
Windows are mostly dusty, but when a camera lens is close to the glass it sees through only a small portion of the window. You can usually find one or more clean areas—shoot through them, never with a window speck directly in front of the lens.

Vibration is always present in any part of a plane. Holding the camera away from the plane and letting your body act as a shock absorber, reduces vibration at the camera.

Light is in greater abundance aloft than one would suspect. Check by exposure meter. A cross light is better than a flat one because it accents hills, valleys, and forest. When



Chase Lakes, Maine. Famous for their large squaretails. The flying sportsman should always be prepared to photograph his hunting ground from the air. Fast pan film, K2 filter, 1/200 sec.



Am I Hearing Things? When our canoe scraped the tall grass, the cow moose raised her head with ears cocked. Range about 50 ft.; No. 50 bulb; open shutter; 73mm lens at *f*/2.2; fast pan film.

flying in a private plane you can do some maneuvering. As you fly over and around a given scene you will note a great variation in contrast and color—shoot from where it looks best to you.

Haze Filters for color films help penetrate atmospheric haze which is almost always present. A medium yellow (K2) gives black and white negatives more contrast.

Film. Because of the abundance of light, fast black and white film is of no special value in aerial photography—relatively slow emulsions will do the trick.

Weather conditions are of much more importance in aerial work than in work on the ground. Air shots are at their best on clear days.

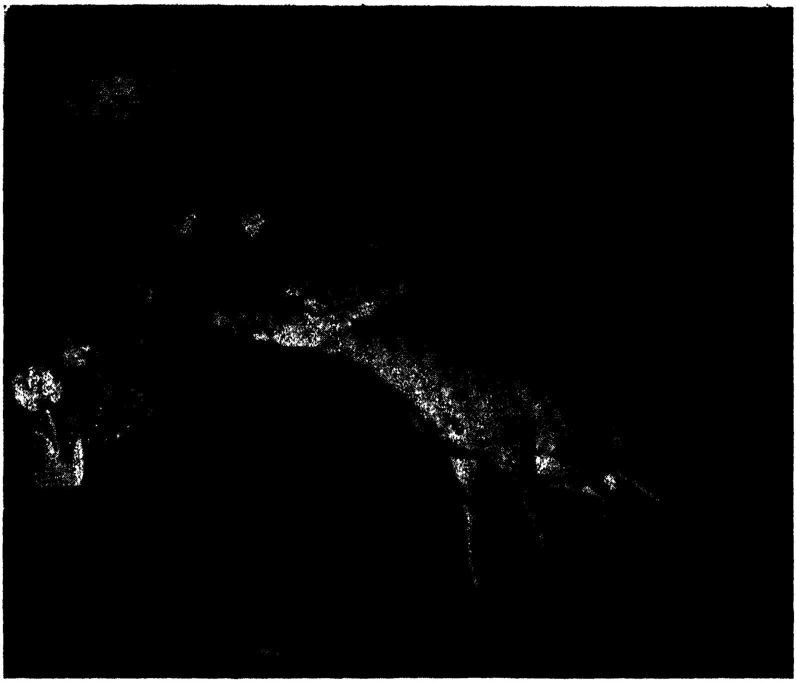
Camera angles are most important. Straight down views are all right for survey work but they are flat. An angle which barely includes the horizon has perspective.

Shutter speeds should be fast because they reduce camera movement during exposure. 1/100 to 1/500 sec. are recommended.

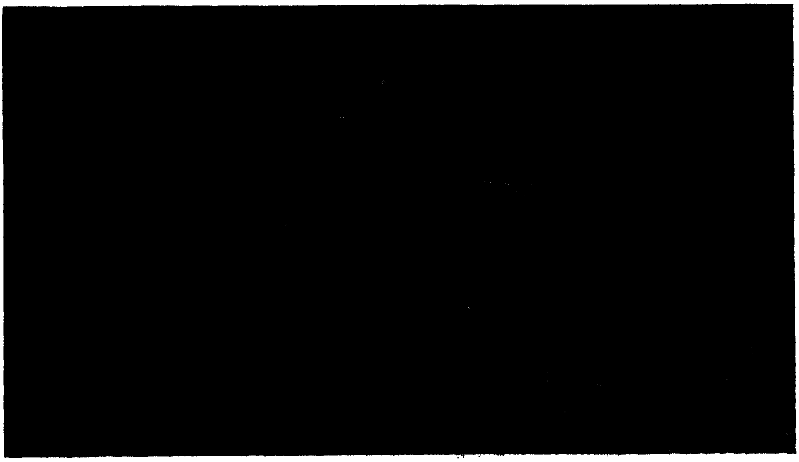
Infrared Photography

Immediately beyond the red end of the spectrum, and invisible to the human eye, lie wave lengths known as infrared, meaning "below the red." We have already noted the predominance of red at sunrise and sunset due to the fact that red passes through the tiny particles of atmospheric moisture while other colors are diffused. Film sensitized to photograph these infrared rays will therefore be haze penetrating and of use in photographing distant landscapes like mountain ranges or coast lines.

Infrared film has endless uses in criminology, the medical profession, and many of the sciences. For the outdoor photographer it is a means of making special effects which often simulate moonlight. It should be noted that when



Bright Carpet Ahead. A night flash enthusiast in the north woods starts with this tame buck. Note eye shine from flash.



Midnight Snack. The unsuspicious doe caught with a stem of pickerel weed in her mouth. Range about 25 ft.; No. 50 bulb; open shutter;

visibility is poor as in thick fog, infrared is of little use. It will not penetrate the larger moisture particles in mist or fog.

To be effective, infrared film must be used with a filter —usually a Wratten No. 25, which is deep red. In photographs made by this method, greens photograph white, snow and clouds are extremely white, and the blue sky almost black. The new green growth on spruce trees will be white while the rest of the tree remains dark. All shadows are quite dark.

Bright Carpet Ahead

One of the many reasons the Egyptians had so much reverence for cats was that they believed the cat's eyes reflected the light of the sun after the sun went down. What the Egyptians saw was reflected light—reflected by a mirror-like device located behind the retina of the cat's eye. Although this mirror has many forms, it is generally called *tapetum lucidum* which means "bright carpet."

Locating game birds and animals by eye shine—called "jacking" by poachers and game wardens—is not always for photographic purposes. Game wardens have picked up woodcock poachers in a southern state while they were locating the birds by eye shine on their feeding grounds at night. In a northern state, so the story goes, deer poachers were keeping a warden on the run. Knowing where the poachers were working, the warden set an unusual trap designed to end poaching. He placed a few pairs of reflector buttons—the kind used on stop signs—around the woods, spacing them like deer eyes. Between each pair of buttons he put a piece of dynamite. The first blast of buckshot cured all poaching in the vicinity without court proceedings.

On account of the poaching angle, some states and provinces have made it unlawful to carry headlights within their boundaries, but for safety purposes, a two cell light is legal, although pointing it as you do a shot gun—looking over the barrel—it is just as deadly an eye finder. The difficulty is that holding a flashlight instead of a camera handicaps a peaceful photographer when a headlight beam points without use of hands.

The "have nots" of eye shine include man and his horse, most birds, all the rodents (gnawing animals), and many others. But if a member of the family of cats, dogs, bears, weasels, deer and moose, look at you over the barrel of your flashlight, you'll see the light reflected by their "bright carpets."

Nights in the wilderness spent gliding around streams and lakes by canoe in search of camera game are the most exciting of all phases of outdoor photography; and judging from the number of photographs published, the most difficult and least practiced by camera nimrods. Rules of the game are no smokes, no sneezes, no blows, whispers only; paddles are shaved to knife-edge thickness to cut the water in silence; cameras and accessories are placed on a woolen blanket to prevent clattering on wood or aluminum; and the garb of the duck hunting blind is replaced by fabric which can be brushed against itself without rasping. There should be no scent carrying wind; and moonless nights are best for the stalk.

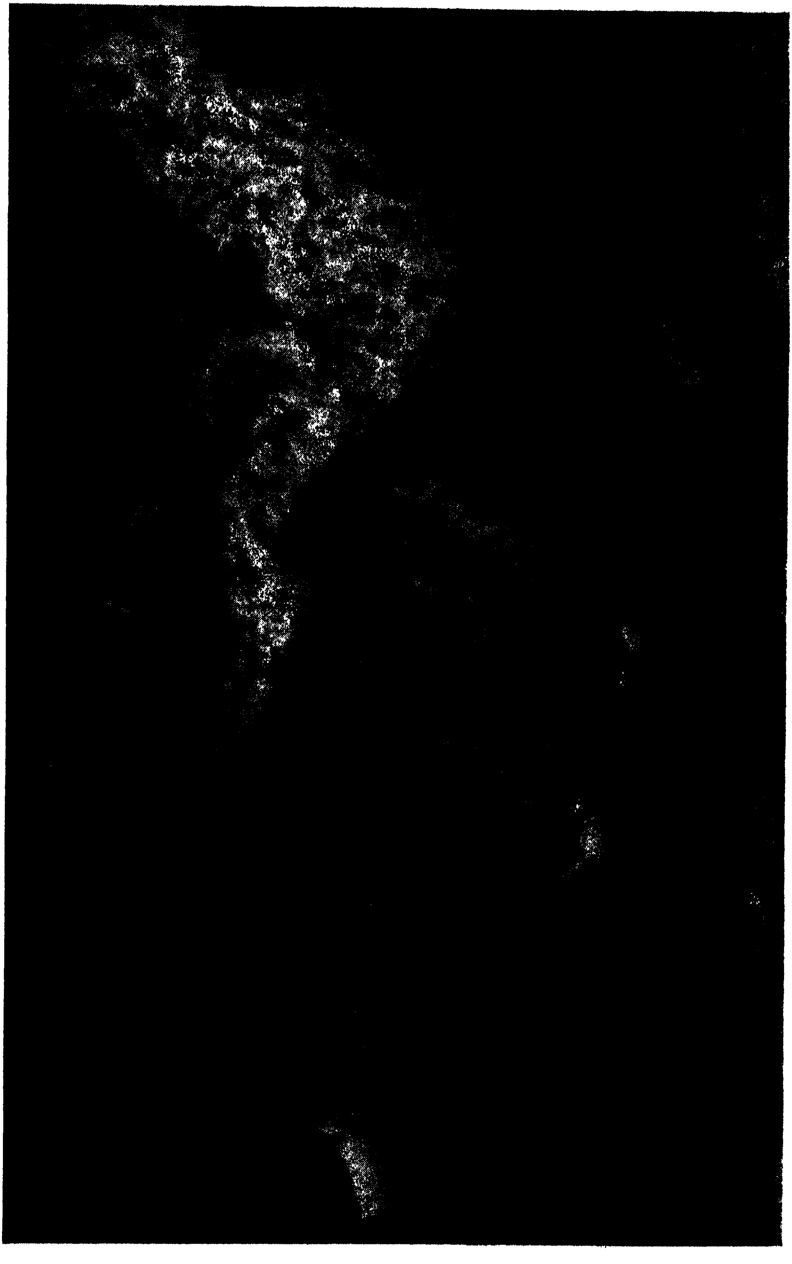
I'm convinced that one woodsman I've prowled with at night could hear the feather of a horned owl dropping a quarter of a mile away. Night stalking with camera was a hobby of his—he had trained himself to listen, and practice told him the meaning of the slightest sound. "A moose chewing its cud—the cry of a fawn—something walking through the grass near the river's edge sounds like the steps of a deer —beaver in the act of cutting down a tree—flying squirrels in that tree," he'd whisper. The constant clatter of city life dulls our ears to the sounds in the wilderness to such an extent that "tuning in" becomes a postgraduate course in concentration.

On account of eye spacement, deer and moose are easy to distinguish after you've seen them a few times. But there was the night we'd followed a browsing moose hoping he or she would come to the water's edge for the lush water lily pads and roots of which these animals are so fond. After five hours of eye shine glimpses through the brush, the animal did come out for a drink—it was an ox.

One of the peculiarities of game at night is that it pays little attention to the light thrown upon it and, as every poacher knows, can be approached within feet. The explanation of this is that game is accustomed to the light of the sun, the full moon, and lightning, and it accepts the flashlight as one of these. Night stalking is not without the element of danger—more than one deer has charged my canoe. Not a deliberate charge though. At the time, my light was on them at fairly close range and they happened to turn their heads around in natural, on-the-alert movement. When they did so, they probably saw their shadows moving behind them in the bush and immediately jumped away from what they thought was danger. Breaking the silence sent them in another direction; otherwise my companion and I would have been in for a wetting.

Another odd thing about deer and moose is that sometimes they pay no attention to a flash, probably because it is accompanied by little sound. On more than one occasion I was able—with noiseless care—to insert a second bulb and make a second shot.

After night stalking many lakes and streams, I have observed that the stalked gets wise to the game when the same water is played night after night. Wisest of the bunch, and a



Auks and Murres, Bird Rock, Magdalen Islands, P.Q.

"have not" of eye shine, appears to be the beaver. One night in water where they are working is enough. On a second night I've heard their tail slaps half a mile away the instant my flashlight probed the darkness. That warning is liable to spoil a night's camera hunt.

With synchronized flash equipment, the sportsman who is looking for new experiences and unusual photographs of game, has a field too little explored by modern camera techniques. Photo-flash tables, except as guides, are of little use on this work. Make your own test exposures in a woods at night with black and white (use the fastest you can get) and color film, using various shutter speeds and lens openings; then check the camera-to-object distances for best exposure. You'll be amazed how close you'll have to be, even if you use an open shutter which takes advantage of all the light from the bulb.

Judging distances at night is uncertain, as anybody who has walked into an open door will testify. A moose can look like the span of a bridge with the canoe nosing under it, and still be 100 feet away. When you can work with camera and headlight together, a coupled-to-lens range finder can be set on eye shine with extreme accuracy.

Color renderings by flash in the woods or marshes are theatrical in quality. The immediate foreground is of course over exposed; next comes a certain depth of correctly exposed field in which if you are lucky, you have caught the principal actors. Beyond that, the black curtain of night.

M—A—R—K!

The last stray shot is the never to be forgotten one:

M eter reading for light value.
A perture setting.
R ange setting.
K ey shutter speed to action and aperture setting.

Follow these and you'll never miss.